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UNITED STATES—A STUDY OF UNITY IN DIVERSITY

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It is particularly important at the present time that American and British people should know all they can of one another, and, on both sides, should realise that there are manifold diversities among the people of U.S.A. as among those of Great Britain, indeed specially deep ones conditioned by the vast spaces of U.S.A. and the backgrounds of the diverse groups of immigrants. Nearly 3,000,000 square miles formed of 48 states gives an average size for a state as twice that of Scotland. A few of the original states, it is true, are small, however important they may be ; some of the nineteenth-century additions, on the other hand, are very large, Texas being more than twice the size of the whole of the British Isles. The name United States of America was given by the famous thinker Tom Paine, who rendered such great, if at times a little erratic, service to the Founding Fathers. Those fathers included three very different groups. There were, in New England, the descendants of the immigrants of the *Mayflower*, the *Arabella* and other ships of Puritans seeking the opportunity to found communities, usually of strict Calvinists inclined to ostracise, expel, or punish those who did not agree with them. In Pennsylvania, there were Quaker groups inspired by William Penn, the aristocratic Englishman whose idealism saw visions centuries ahead of his time. To Maryland and Virginia, North and South Carolina came scions of the British landed gentry, the Washington family being a most notable instance. These families developed estates worked by African slaves in Virginia and farther south, and, with their larger resources, they were able to travel to Europe to be in contact with the critical movements leading to the French Revolution, in which indeed Thomas Jefferson and Tom Paine played their parts.

In New England, the colonists of the *Mayflower* in December 1620 faced the bitter cold of winters with snow on the ground from three to four months and temperatures sometimes falling to 60 or 70 degrees of frost (Fahrenheit). They found it difficult to grow wheat because of rust disease ; they saw as the snow melted that rock surfaces (planed by old ice sheets) limited the arable area ; they faced vast forests with wild

animals and Indians. Nathaniel Hawthorne's *Scarlet Letter* gives a telling account of the superstitions bred by the mystery and danger of the forest, as well as of the rigidity of the Puritan outlook which was not in the least disposed towards freedom of conscience. But with all this went a stern determination, a faith in the future that made them overcome obstacles. Food came through maize planting learned from Indians, and by and by from potatoes and other vegetables, some of which the Pilgrim Fathers brought with them. They cut timber and built clapboard houses with stone hearths and chimneys, and gradually gathered strength and founded villages and towns which were inspired by the gracious traditions of the better building in England of the eighteenth century, traditions that have made many a little New England town a heritage of beauty. " Queen Anne " and " Georgian " houses may have a handsome fanlight over the dignified doorway, often a gambrel or a mansard roof, sometimes a cupola lookout on the middle of the roof-ridge, especially if they are houses of sea captains. The houses often rise from broad unfenced grass verges, sometimes edged with low cut barberry, and they stand in individual dignity, or semi-detached, along tree-lined avenues. And the trees are maples, yellowish crimson in spring, a rich green in summer, and wonderfully aflame in October, or they may be oaks (*Quercus rubra*) with large leaves that take on a deep wine red colour as the maple colours pass away. Their deep red is followed in its turn by the bright red of the dying barberry leaves and the barberry fruits.

The settlers looked to England not only for their house types, but also for their churches, and the influence of Sir Christopher Wren is to be seen all over New England, unfortunately replaced or supplemented here and there by the weakest features of the nineteenth-century Gothic revival. Generally, however, the white-painted, wood-built village church with its Wren spire is a decorative feature ; and it is of special interest to note that in both Old and New England it is the style of the parish church, but, while that parish church in Old England is of the Anglican Communion, in New England it belongs to the Independents (Congregationalists) or some other Puritan group. The Puritans set their stamp on New England, and, on the original hill of Boston, they built rows of fine houses along Beacon Street, Chestnut Street, Mount Vernon Street and around Louisburg Square, making a neighbourhood that would be the pride of any English town if it were lucky enough to possess such a collection.

After the Ice Ages, the rise of sea level flooded the lower ends of the broad rivers of New England and gave endless opportunities for fishing and seamanship, with the great forests to supply timber for shipbuilding which became a highly skilled industry in the first half of the nineteenth century. The schooner-rigged three-masters, sometimes four-masters, sailed the seven seas, and the captains and officers often took their wives with them, so that New England gossip went on around the Horn, and Chinese silks and pots came to New England houses bought sometimes with taste, sometimes without. When iron ships became common, the old industry declined and the old seamanship was lost save in the greater ports, mostly outside New England with the exceptions of Boston and Portland, but even these were outdistanced by New York as the railways

and the interior were opened up. Nevertheless, Boston and the surrounding settlements have grown together to form an agglomeration of over two million people, comparable with Philadelphia, Detroit and the San Francisco group, if no longer with New York and Chicago.

Not only did the end of the Ice Ages flood the estuaries, it obstructed the valleys with morainic bars of boulder clay so that, as the rivers re-established themselves, they often found new courses, sometimes leaping down steep slopes that gave water power for textile mills. Irish immigrants, followed later by Italians, French Canadians and others, were drawn into the factory towns that grew in the nineteenth century, and the large families of the operatives came to be contrasted with the small families of the older settlers who directed the industry. So New England has changed, and is changing, from its older Puritan tradition to a newer order in which Roman Catholicism plays a very large part. The Puritan tradition, too, has changed of itself largely through late eighteenth- and nineteenth-century contacts with European movements. The old Calvinism has often transformed itself into Unitarianism or something akin to this, and " The King's Chapel," as it is still called in Boston because it was the official place of worship of the Governor of Massachusetts in Colonial days, uses a revision of the Anglican Book of Common Prayer edited to remove features to which Unitarian thinkers took exception.

The opening up of the interior not only gave New York its supreme position in the life of the U.S.A., it led New England farmers to leave the pockets of poor soil in order to occupy the fertile lands that became the state of Ohio. So it has come about that decayed farms and decayed shipbuilding, and beautiful little towns with memories of a more active past, are features of New England. Yet, these north-eastern states maintain themselves on skilled industries, among which those of Waltham and Waterbury watches are widely known, and on commerce and science, which last has become vastly important at Harvard University in Cambridge, now effectively a part of the Boston agglomerate, and at the Massachusetts Institute of Technology (M.I.T.) in Boston as well as at Harvard's slightly younger competitor, Yale, in New Haven, Connecticut. These are but the more famous of a number of centres of learning, among which geographers in particular well know Clark University, Worcester, Mass., where our subject receives special attention.

New York, the New Amsterdam of Dutch settlers of the seventeenth century, on the splendid Hudson, grew especially when the Hudson-Mohawk gap became available for communication, particularly by rail. By this time the original Dutch element had become outnumbered by Irish, British, Germans, and Jews from several central European countries. It is therefore all the more interesting that the old Dutch contribution has become prominent—for example, in the Roosevelt family, to name only one among several. The magnificence of the streets, the Central Park, the skyscrapers (better called towers) of Manhattan, the wonderful spaciousness of the harbour, the riches of the museums, and the degradation of the coloured quarter of Harlem are too well known to need discussion. It may, however, be useful to point out that only to a slight extent in Greenwich Village, downtown, does New York have anything comparable with the historic quarter of Boston. Boston has its old State

House of 1710, its South Meeting from which the citizens went to throw the tea into the harbour, its Faneuil Hall, one of the chief cradles of the Revolution. New York has little remaining even from the early years of the nineteenth century. Its unique and rapid growth has transformed it; and it has been said, with only very fractional truth, that Boston's future is in the past and New York's past in the future. Actually there is scope for both, and Boston's tradition is being handed on to the immigrants of many nationalities, whatever may be the fate of its old families.

Independence Hall and the American Philosophical Society, in Philadelphia, are inheritances from the Revolution and Benjamin Franklin, while Bryn Mawr College for women with its high academic reputation springs from the Quaker tradition of the city and the state. The city, a centre of varied industry, commerce and finance though long since outpaced by New York and Chicago, is still the third in U.S.A., or the fourth if we consider the Boston agglomerate as the real unit in place of the officially delimited city. The interior of the state has numbers of what are called " Pennsylvania Dutch," the word Dutch being a corruption of Deutsch. These people are German Lutherans long settled in the U.S.A. but still clinging to linguistic and religious associations brought from Europe.

Were this article an attempt to describe the U.S.A., it would be most important to enlarge upon Washington in which the great republic has tried to express its unity, but we are concerned rather with the diversity of elements of tradition that are interweaving themselves into American life, so we may pass on. Maryland and its great city of Baltimore give notice, in their flowers and in their people, that we are nearing the south, and, once in Virginia, there is no doubt that we are among the successors of plantation owners and the children of the slaves.

Of the first five of the Presidents of U.S.A. only the second, Adams, belonged to Boston. Washington, Jefferson, Madison, and Monroe belonged to Virginia. But since then Virginia has given only one Vice-President, who became President because the elected President died. Some old family names are still found in the south, but the old order has changed. Mansions with pillared fronts, which Jefferson's prestige as an amateur architect helped to spread, may now be inhabited by hirelings or may have fallen still lower. Coloured labour is everywhere, and only germs of a real effort to lift that element to a level of dignity and responsibility are apparent. The U.S.A. is here faced with an insoluble problem, to be softened by goodwill, time and compromise and, especially, a humane as well as a technological education. The problem is made no easier by the losses of the cotton planters through the boll weevil, by their neglect of the education of the coloured folk to better cultivation, and by the outbursts of prejudice and violence that all serious Americans deplore. The situation is such that unprincipled agitators have more than once caused crises and gained political power for a time, and there still linger old hatreds from the days of the Civil War. Lincoln was murdered, and his immediate successors were incompetent to work out ideals he had for both the south and the north. Among the monuments of Virginia is its University at Charlotteville, planned academically and architecturally by Jefferson after he retired from the Presidency of U.S.A.

at the age of 69. Like everything else coming from that mind, the University is original in the style and arrangement of its buildings, probably the most artistic buildings of the days before the twentieth century in North America.

The wide spaces between the Appalachians and the Rockies, with only a few local fragments of very moderate highland, vary from the almost Scandinavian Minnesota to the still somewhat French-flavoured Louisiana, with a decrease of the coloured element as we go north, but not such a marked decrease as of old because the coloured folk are moving bit by bit to the greater opportunities of the north and away from the increasingly felt inhibitions of the deep south.

Apple and other orchards south of the great lakes, corn (*i.e.* maize), spring wheat, winter wheat, and cotton characterise the farming until we reach the drier cattle-lands towards the Rockies, into which cultivation spread too far in the war of 1914-18 and gave rise to the dustbowls of the dry years of the early 'thirties. A population ready to move on west is less careful of its soil than a long settled peasantry, and still less thoughtful about the forests which, where they existed towards the Appalachians, should have been preserved as sponges to hold up the water and so prevent the floods of the Ohio which have brought so much destruction from time to time. Industry has added itself to cultivation and Pittsburgh's smoke pall is perhaps worse than any we have in Britain. Cleveland on Lake Erie smelts iron from the south-west of Lake Superior with coal brought down to the lakeside from Pittsburgh. And Chicago, with its stockyards, its mills, its meat, its splendid lakeside drive and its crowded streets still darkened by the overhead railways that New York has almost discarded, has hoped to become the great city of U.S.A. It still has much to do before it rivals New York but it has risen to second place, and Detroit may be about fifth or sixth.

The express train takes about nine hours to traverse the plains of Kansas with widely spaced homesteads lost in the level immensity. Isolation, save for radio and automobile, is written over the face of many a great stretch of the Middle West. In these great areas groups of immigrants from several European countries are able to cling to the language and religious ceremonies of their old homes and so to delay complete absorption into the unity of the republic of which they are usually loyal and industrious citizens. The immense Mississippi basin is full of economic possibilities as well as of political problems for the United States. Soil conservation, care of forests, reduction of isolation are all prime needs that the isolated farmer often does not realise. Unfortunately the situation has sometimes given opportunities to political " bosses " and their nominees, as is only too easy to understand.

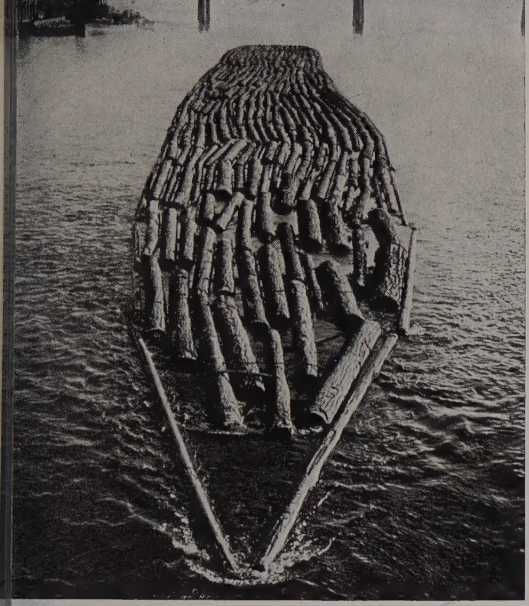
The deserts of the south-west, from the Grand Canyon to the Mexican border, impress the visitor with their great long rock-scarps, fantastically worn, rising out of the desert plain that may be covered with sage brush and cacti of many kinds. Scrub cattle mysteriously find food in these dry lands, and drink from irrigation ditches which also refresh patches of cultivation near the occasional towns. But there is the danger of too much evaporation and a resulting deposition of salt, and the dams of the irrigation reservoirs are apt to accumulate salt. Here again, then, careful

administration will be needed to maintain economic utilisation. It is characteristic of U.S.A. that a great motor road, beautifully surfaced, streaks across the wastes right-away to California.

In California we see not only the wonderful beauty of the Sierra Nevada, the Yosemite, the fruit groves of the Santa Clara Valley, the rich colours of the giant redwoods, but also the achievements of a hundred years of work on a basis provided by the older Spanish missions. San Francisco, with Oakland, Berkeley, and other settlements around its bay, looks forward to becoming the premier city of U.S.A.—perhaps, say some citizens, of the Pacific, or even, they may add with characteristic enthusiasm, of the world. The summer fog-belt near the Golden Gate was long a trouble, but hopes are entertained that Radar will get over this and ensure San Francisco's superiority over its hastily developing rivals, Los Angeles, already well over the million mark, and San Diego. In San Francisco, Chinatown is not only a picturesque attraction for visitors, it is a sign of racial problems, different it is true from those accompanying the children of the slaves in the southern states, but a basis of prejudice against people of Chinese, and especially of Japanese, ancestry, though they may be well established Americans even of the second or third generation. California has to think of forest conservation, of irrigation control to avoid salting, of the future exhaustion of mineral oils, of the care of her soil, but for the time being she seems to prosper and to look forward to a great future.

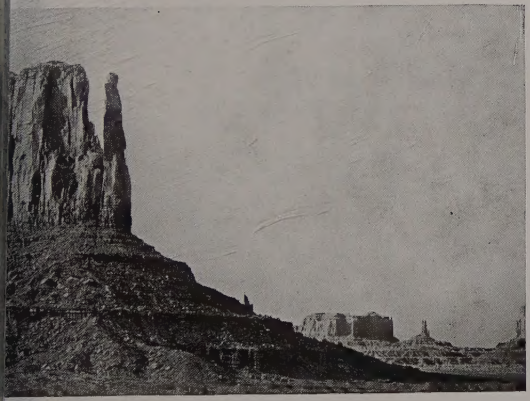
In north-western U.S.A., Portland (Oregon) and Seattle (Washington) have become large commercial centres and ports for a country with a magnificent supply of fine timber. The great pines of the hillsides may cluster round some high and lonely volcanic peak projecting above the snow line. But even here the main lines of development seem to be laid down.

This brisk and fragmentary survey has taken us around some larger regions of U.S.A. and should enable us to draw the inference that there is no longer an open and unknown west to absorb those who cannot quite find a suitable means of livelihood in their homes, either in Europe or in Atlantic America. It may even be suggested that the open west of the nineteenth century was a more important factor of the evolution of *laissez faire* and liberal democracy than has sometimes been realised. At any rate, the great republic has to face new adjustments and policies to avoid unemployment and social disintegration. The economic systems of America, Britain, and Europe have to depend more on controls and conservation even if Britain still has something of the open frontier in parts of the Dominions. Broadly, there are growing analogies between the problems of U.S.A. and of the British Commonwealth, analogies which are gradually replacing earlier contrasts when Britain itself, with its dependence on industry and commerce, loomed larger in our Commonwealth life. We, in Britain, have spent almost our all in defence of ourselves and of U.S.A., as the American Chief of Staff, General Marshall, so generously said. We are as little accustomed to being debtors as our American friends are to being creditors, after many years in which they had to have an export surplus to cover the interest on bonds held in Britain as mortgages on American railroads. In the last quarter of the nineteenth century the railroad bonds and shares of U.S.A. were a major feature of



COLUMBIA RIVER

LEXINGTON, VIRGINIA



MONUMENT VALLEY, ARIZONA

BIG HOLE BASIN, MONTANA

RIVERSIDE, CALIFORNIA

COTTON PICKERS, LOUISIANA

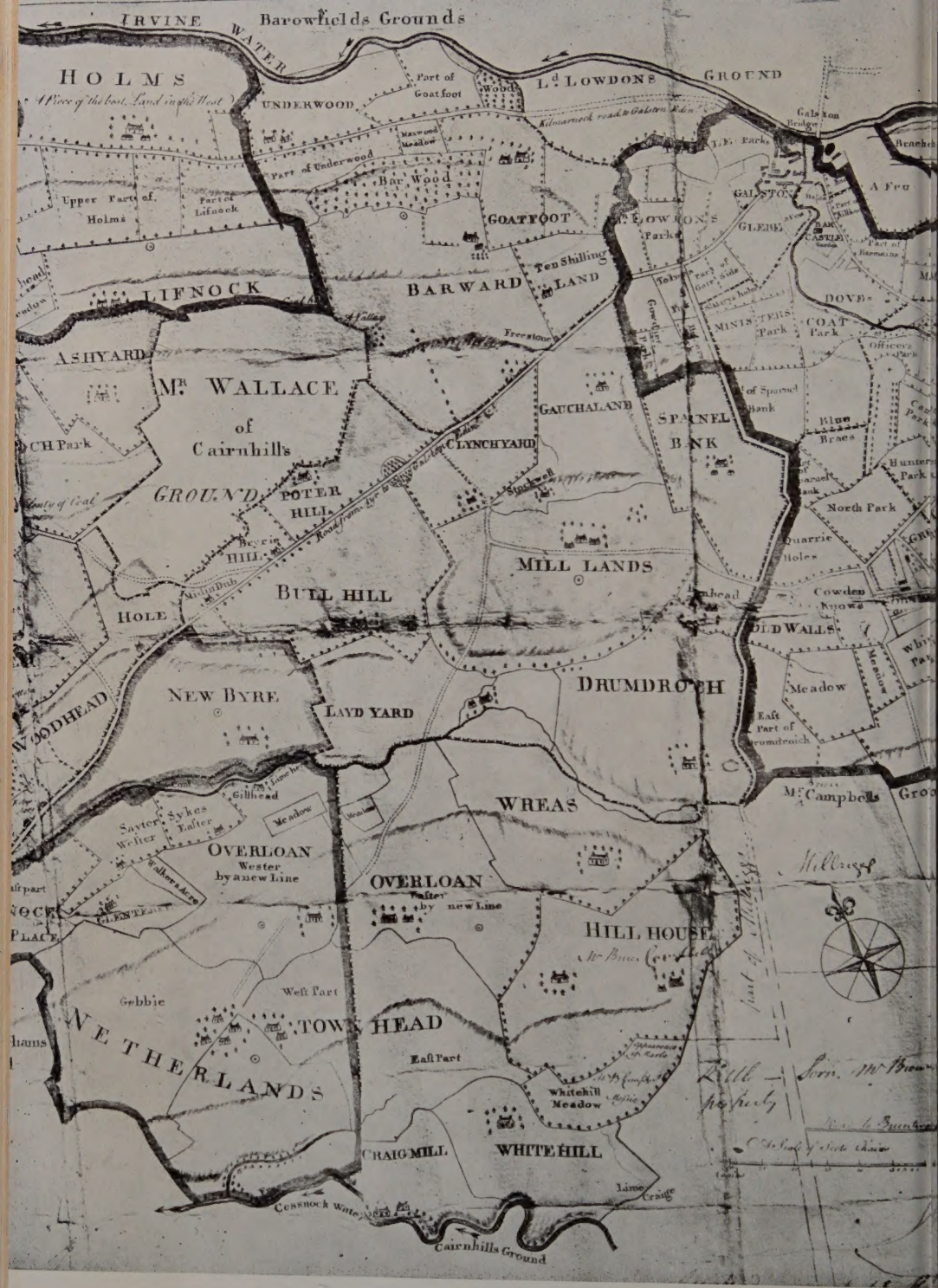


Fig. 1. Central portion of *A Plan of the Lands and Baronys of Cessnock, Haining, Riccarton and Galston*, by Charles Ro (about 1760). On about one-quarter the original scale, which is approximately five inches to the mile.

our London Stock Exchange activities. Now they are not dealt in enough to make them worth quoting on the finance page of most of our London dailies.

From this it follows that, along with growing analogies in the matter of economic controls, employment policy, social security and international relations, there goes an increasing commercial diversity. We cannot import as freely as of old ; we now lack the wherewithal to pay for luxuries we used to enjoy. Our American friends, on the other hand, will need to adjust themselves to increased imports if they are to receive any interest from their numerous debtors.

In both America and Britain the great experiment goes on, aiming at the freest possible choice of persons to exercise government over us and to change our government without violence or proscription. In both, the new conditions of economic activity of governments make these ideals more difficult without making them impossible. Long British experience and American freshness can supplement one another if there be a reasonable realisation of one another's problems as well as of one's own opportunities for service. It has been the aim of this short summary of a lecture [1] to promote that realisation on our part, a realisation which is one of the most urgent needs of the world today.

[1] Lecture to the Royal Scottish Geographical Society, March 14th, 1946

THE FACE OF THE COUNTRYSIDE IN CENTRAL AYRSHIRE DURING THE EIGHTEENTH AND NINETEENTH CENTURIES

By J. H. G. Lebon, B.Sc.(Econ.)

The Act of Union in 1707, though it brought an unpalatable ending to the independent Scottish nation, gave peace after a century of civil commotion and ecclesiastical strife, which, absorbing the people's energies and destroying not a few of the durable products of human workmanship, left the country at the end of the seventeenth century in a state of poverty and backwardness, compared with its southern neighbour and much of Western Europe. It was undoubtedly a realisation of the material disadvantages of civil turmoil that deprived the '15 and '45 of popular support in the Lowlands and south Scotland ; to the majority of Scots, renewal of fighting in the cause of a dynasty that was uncomprehending of the national character and mood seemed futile and irrational. Many social elements south of the Highland line were becoming occupied with the beginnings of the great economic advance by which Scotland brought her agriculture, commerce and industry to the level of the greater partner in the Union. The progress made by the end of the eighteenth century, in intellectual life, commerce, industry, and agriculture, bears witness to the virtues of enterprise and hard toil.

It is with the development of the national effort on the land that we are concerned here. In general terms, the rural transformation accomplished mainly between 1750 and 1850 has often been described. Because it saw the supersession of open farmland by modern fields, it is usually

called the Enclosure Movement. But of equal importance are the revision of the relation between landlord and tenant (including the adoption of modern leases) and the introduction of improved farming practices.[1]

For the realistic study of these great changes in country life the historian turns to the *Statistical Accounts* and *Board of Agriculture Reports*.[2] In the complementary field of geography we scrutinise large-scale maps. The question of detail is vital. Our objective is the elucidation of changes in the distribution and lay-out of estates, parks, farms, roads, and villages ; for such a study, detailed representation by accurate surveying is imperative. For the concluding phases of agrarian change in the nineteenth century, the Ordnance Survey (working in Ayrshire first in 1854-58) permits comprehensive scrutiny in a way that will be indicated below. Its important predecessor, Thomson's *Atlas of Scotland* (1832), based upon careful collation of existing estate maps, is also of great value. In view of the paucity of extensive large-scale eighteenth century surveys, realisation of the value of contemporary local estate plans has not been wanting in recent years, and articles based thereon have been published in this *Magazine*.[3] In the present article, some hitherto unnoticed sources from estate offices will be analysed to yield their quota of evidence to our knowledge of rural change.

I

The parishes of Riccarton and Galston, in central Ayrshire, are bounded to the north by the Water of Irvine, being largely drained by left-bank tributaries of this river, including the not inconsiderable Cessnock Water. Riccarton is fairly low-lying, between 100 and 450 feet ; Galston rises steeply from the vale of the upper Irvine Water to the moory hills around Distinkhorn (1258 feet) in the extreme south-east and on the county boundary. The soils, in general derived from glacial drift, reflect indirectly the nature of the " solid " rocks, mainly Devonian and Carboniferous sandstones, and are light or medium loams. Thus they are more arable than the average for the county and Lowlands generally ; this quality, combined with the well-developed but not over-steep slopes in central Galston, has encouraged land improvement to nearly 1000 feet above sea level, considerably higher than is usual in Ayrshire. Apart from the narrow belt in the north along the Irvine Water, not more than a mile wide, the two parishes have remained profoundly rural ; and it is possible to trace the process of agrarian change with great fidelity and clarity. Plans covering the eastern part of Riccarton and the western part of Galston, the earliest dating to about 1760, the latest 1816, and thus spanning the principal phase of the Agrarian Revolution, have been preserved for more than a century in the Portland Estate Office, Kilmarnock. First, there is a single-sheet " Plan of the Lands and Baronys of Cessnock, Haining, Riccarton and Galston, by Charles Ross, Land Surveyor at Greenlaw near Paisley," which was prepared as a preliminary to large sales. For this reason, the legend inside the principal cartouche dwells at length upon the natural advantages of the district : " the Situation of these Estates are remarkable (*sic*) agreeable betwixt the Rivers of Cessnock and Irvine in the Neighbourhood of Kilmarnock and within a few Miles of the Towns of Air and Irvine . . . there are Several pleasant Situations for Gentlemens Seats on Other Parts of the Estates near valuable Woods and Plantations.

The Lands are all arable naturally of a rich Substantial Soil well watered and in greatest part inclosed, abounding in good Coal and Limestone, and in these Circumstances are highly Improveable at an Easy Charge." A symbol, ⊙, is employed to represent "Good Situations for Houses," and this is distributed liberally over the face of the map. To ensure wide advertisement, this map was printed from a copper plate, and it is possible that other copies are still extant. The central portion of this survey has been reproduced as Fig. 1; and we may study this as representative of the whole. In doing so, it is important to appreciate the distinction between *boundaries* and *fences*. In a corner of the original (not reproduced here) Ross clearly indicated that a line reinforced by a row of tree symbols denoted "Hedge Rows and Ditches"; a plain line was simply a boundary, indicated on the ground doubtless by stones or posts. He also employed the modern conventions in showing roads: fenced roads were drawn as a pair of continuous lines, unfenced, as a pair of pecked lines. (The colour bands accompanied by heavy pecked lines should be ignored; they simply denoted lands for sale.) It is evident that, at the date of survey, this part of Ayrshire was in a transitional state. A considerable area south and west of Galston had already been enclosed; and the surveyor (unlike the Ordnance Survey) added to the interest of his map by writing in the names of the "Parks"; e.g., Dovecot Park, Cams Park, Hunters Park, North Park.[4] In the centre and west there were several farms enclosed along their *boundaries*, but not yet divided into fields, and exemplified by Sparnel Bank, Poter Hill and Hill House.[5] Besides these, there were farms still quite unenclosed, apart from small patches near the farmhouses. These included Wreas, the two Overloans, Townhead, the two Netherlands, Craigmill and Whitehill. Another feature was the presence of several small farms or small holdings, such as Bryrie Hill, Midin Dub, Easter and Wester Saytersykes and Glenterfe. In extent, these were all less than about 40 acres. Farmhouses were represented by conventionally drawing a small house, sheltered by a curving row of trees. In many holdings, several farmhouses were grouped together; there seems little doubt that these (e.g., Holms, Underwood, Goatfoot, Barward, Mill Lands and Netherlands) were representative of collective tenures which had survived till the modern period, the families concerned working the land together. The eighteenth century in due course was to witness the replacement of these tenures by modern individual leases. The representation of the contemporary landscape was completed by the inclusion of portions of the primitive network of tracks connecting the scattered farms of the district. (These products of both the human pedestrian and the beast of burden evidently owed nothing to surveyors' instruments and the civil engineer! They were best preserved in the centre and south.) In addition, two turnpike roads, from Galston to Ayr and from Galston to Kilmarnock, fenced to secure the proper tolls and cutting straight across many farms, remind us of the first of all the improvements of this age—the provision of metalled main roads, which by quickening communications set in train the whole sequence of economic growth of which this study is but an aspect.[6]

About 1770, a considerable part of the lands surveyed by Ross passed into the ownership of the Duke of Portland. Probably as a preliminary to a programme of improvement, resurvey was undertaken by a John Home,

on a larger scale, in 1773. His volume of eight manuscript plans, each representing five or six farms, drawn in ink, pencil and water-colour, were bound in a single volume. From this work we shall take a single plan (No. 3) for detailed study. This delineates the southern part of the lands surveyed by Ross ; and (redrawn in black to permit of reproduction as a line block) is reproduced as Fig. 2. On this, in greater detail, but essentially unchanged from the earlier plan, we find six farms and four smaller holdings. All the farms in the centre were unimproved ; even the boundaries were unfenced. The network of tracks appeared in greater detail ; and also the steadings and yards. There was a veritable hamlet or township, of farmhouses and interconnected kale-yards, occupied by the tenants of Wester and Easter Netherland. There were two steadings and kale-yards in Easter Overland (Overloan Easter on Ross' Plan) ; other lands revealed but single farmhouses. Examples of Home's tabular marginal assessment are worthy of quotation :

Wester Netherland			
The arable lands as marked in four places	57 ac.	0 r.	24 p.
Houses and yards	3	2	32
Total	60	3	16
Craig Mill			
Arable lands marked in two places	28	1	0
Stances of houses and yards		1	0
Steep braes along Cessnock Water	8	0	0
Wood west from the mill		2	25
	37	0	25

The yards in the original are revealed as small kitchen gardens, laid out in plots, and surrounded by hedges and trees. Remaining land, classed as arable (apart from steep braes, woods and small enclosed meadows), must have been cultivated according to the infield-outfield system so often described by writers on economic history.[1, 2, 5] There is little suggestion of the transformation in store ; save the addition since 1760 of the Kilmarnock–Mauchline toll road, cutting straight across Wester Netherland and unconnected with primitive tracks (which seem to have led north and east to Galston and Kilmarnock, perhaps avoiding the Cessnock crossing). In this new road, we may perhaps see symbolised the potential force of change, soon to be rendered dynamic.

In Fig. 3, the same area is shown from the Ordnance Survey Six Inch Maps (Sheet XXIII), First Edition 1858, Third Edition 1908. It is evident that a revolution was wrought, mainly before 1858. Farmhouses vanished ; open outfields divided into modern fields ; new roads (and railways) laid down. But elements were preserved from the pre-Enclosure period. Closer analysis can distinguish new from old. Three large farms—West and East Overland and Whitehill—with the smaller farms of Satersyke (formerly East Satersyke) and Glenturf—remain, though with modernised buildings and altered yards. The turnpike road from Kilmarnock to Mauchline became the open main road of the nineteenth and twentieth centuries. Less readily perceived, but still to be identified, are fences which date from the tentative beginnings of enclosure in the eighteenth century, exhibiting no difference from the other field boundaries on the Six Inch Map, but never-

theless of greater antiquity. The farms to the east, Wraes and Hillhouse, had already been partially enclosed by fences around the boundaries in 1760 ; and these were left unchanged. If Figs. 2 and 3 be compared, it will be realised that the fence marked A-B-C-D-E-F-G on Fig. 3 is the same fence as that bounding Easter Overland on Fig. 2, continued between Hill Head and Whitell. Other examples are marked I-J-K-L, originally forming part of the enclosures of Sawtersyke (West Satersyke) ; and Q-R-S-D, just south of East Overland. Of the three smaller burns draining westwards, two have survived, partly as ditches (N-O-J, past Satersyke ; and G-P, west of Whitehill).[7] The latter continues its original course as it approaches the Cessnock Water. But the burn which formerly crossed Netherlands vanished ; and was replaced by field drainage systems. Other older elements surviving in modified form include Netherlands Farm, replacing the older and much larger township ; and parts of primitive tracks. Of the latter, the most obvious survival is the road approaching the Overlands from the north-east, and continuing westwards towards Glenturf (faithfully following the old bend just west of West Overland). The east-west road past Whitehill also antedates enclosure. The most important extensions to the network of byroads are the connections from Glenturf and Netherlands to the main Kilmarnock road, which hung fire whilst the latter was a fenced toll road. Another new road was laid leading eastwards from East Overland. Other additions to the countryside include the woods clothing the rocky braes along the Cessnock Water, and the farm of Townhead.

Comparison of this map with Thomson's representation (1832, or a little earlier) allows more exact dating and recording of changes. Thomson's map is on a scale of about $1\frac{1}{4}$ miles to the inch ; farm and field boundaries therefore could not be shown. But it is certain that little change had taken place in the number and location of farms between 1773 and 1830. The four small farms along the Woodhead Burn—Glenturf, West Satersyke, East Satersyke and Gillhead—were all standing. West and East Netherlands were drawn separately ; it is not clear whether the township of Home's day survived unchanged during the next fifty years, or whether Easter and Wester Netherlands were let to single tenants for a period preceding the amalgamation of the two farms. The other farms shown by Thomson within the area of Fig. 3 are West Overland, East Overland, Hillhead, Whitehill and Craig Mill. Between 1832 and 1858 the principal change was the amalgamation of the two Netherlands, the suppression of Gillhead, and the construction of a new farm, Townhead. (It will be observed that Ross marked a farm " Townhead " just east of the Netherlands ; but both Home and Thomson agree in calling this Hill Head. Since the O.S. in 1858 found both Hill Head and Townhead, we can be fairly confident that there is an error on Ross, or that possibly the inhabitants of 1760 did not clearly distinguish between the description of a site and a name derived therefrom. (*Any* house on the rising ground east of Netherlands might be *described* as (on) *hill head* or *town-head* ; and at least till the end of the eighteenth century it seems probable that neither term had been definitely accepted as the *name* of a farm. Eventually, when between 1832 and 1858 a second farm was erected, the older retained the name Hill Head and the newer was denominated Townhead.) After 1858, three small farm-houses or cottages—West Satersyke, Hillhead and Craig Mill—were eliminated ; in point of

fact, before the Second Edition of the O.S. (1898). Only one new building appeared when Netherland Cottage was constructed in the latter half of the nineteenth century.

One other detail of interest. On the 1858 edition of the O.S. map, the parish boundary between a detached portion of Riccarton (containing the Netherlands and Overlands) and Galston, corresponding to the old western boundary of Wester Netherland, is shown irregularly crossing the modern field boundaries just west of the Kilmarnock road. Later in the nineteenth century, part of the extreme south-west of Galston parish was

Fig. 2. Farms in the south-east of Riccarton Parish, from the original plan by John Home (1773), on the scale of about nineteen inches to one mile. 1 : Fences and fenced boundaries. 2 : Unfenced boundaries. Fenced roads : pair of continuous lines. Unfenced roads : pair of pecked lines. M.P. : Meadow Park.

united with Riccarton, to make the extent of the latter continuous. No trace therefore remains to-day of the former boundary between Netherlands and the farms to the west.

II

We shall now follow the progress of enclosure in the extreme south of Galston, on the western slopes of Cairn Hill (774 feet). In this district, in the days of Ross and Home, land improvement had not yet touched the face of the countryside (Fig. 4). Coalgove, Laigh Langside, Barnhill and High Langside stood in their kale-yards, surrounded by unenclosed arable land (watered by the Little Sorn Burn and its tributaries) and communicating with each other by winding tracks, much as in preceding centuries. There

were only two small parks near the smithy. But the Ordnance Survey Map (Fig. 5) again portrays metamorphosis. Here shelter belts are conspicuous, and indeed are necessary to stock-farming on land much exposed to south-westerly gales. Barnhill and Threepwood plantations, also Burnhead Belting, follow the old fences shown on Fig. 4 (A-B-C-D-E). The streams marking the western marches of High Langside and Burn were enclosed to form Langside Belting and Burn Wood (sources marked M and N on Fig. 4). A similar shelter belt was planted along the burn between Coalgove and West Threepwood (source marked O) ; but had been felled

Fig. 3. The area of Fig. 2 drawn from the Six Inch maps of Ayrshire, Sheet XXIII, Third Edition, 1908 ; with additions from the First Edition, 1858 (dotted lines and lighter lettering). By permission of the Comptroller of His Majesty's Stationery Office.

before the Third Edition (1908). Portions of the old track between High Langside and Cowgove survive ; but the middle is no longer needed. The secondary road from Galston to Sorn follows the general course of the older track just to the west of Cowgove. But the farms have been reduced from five to three by the disappearance of Laigh Langside and Barnhill—a memory of the latter being preserved in the name of a plantation. Also, the smithy has gone. The work of land improvement was doubtless spread over decades ; and in this case there is a plan drawn by John Wilson in 1816 bridging the span between Home's plans and the Ordnance Survey. On this plan, although the shelter belts were already in existence and the land enclosed, the fences around both Cowgove and Langside differed in detail from those of to-day. Moreover, Barnhill still stood, surrounded by three or four irregular fields, with the wedge from Burn just to the south-west,

and approached from Cowgove or Langside along the old track. But already the end was near ; the outlines of the present rectangular fields between Langside and Cowgove Beltings had been superimposed by the draughtsman ; and probably, before many years had passed, the old enclosures were replaced. This district, therefore, was mainly enclosed between 1773 and 1813 ; only one farm remained to be dealt with at the end of the Napoleonic Wars. The consolidation and enlargement of holdings, the

Fig. 4. Four farms in the south-east of Galston parish, from the plans by Charles Ross (about 1760) and John Home (1773). Plans (Figs. 1, 2 and 4) lent by J. Harling Turner, Esq., Factor to the Portland Estates, Kilmarnock.

reduction of the number of farms, the division of arable land into often rectangular fields of approximately equal area (8-12 ac.) and the provision of a grid-iron of shelter belts all manifest the die-stamping of improving landlords.

III

In conclusion, a more extended review will be made of the disappearance of small farms and cottages. We have already noticed examples in the two areas subjected to detailed study ; and another striking instance is provided by the elimination of the four small farms of Poter Hill, Bryrie Hill, Midin Dub and Hole shown strung along the Ayr–Galston road in 1760 and 1773, on another plan by John Wilson, dated 1813, and on Thomson's map ; their suppression again was associated with the later phases of the Enclosure Movement, because they are absent from the First Edition O.S. of 1858.[8] It is not possible to survey the two parishes in entirety before 1832 ; but between Thomson's survey and the First Edition of the O.S. fourteen small farms or cottages vanished from Riccarton and Galston. It is often suggested

that the Agrarian Revolution was completed by the middle of the nineteenth century ; and this may be true if only enclosures be considered ; but the reduction of rural population continued. Between 1858 and 1908 a further nine small farms or cottages were left to moulder into ruin in Riccarton, and ten in Galston. The drift to the towns began with the enlargement of farms and the development of commercial farming ; it continued into the more recent period when chronic depression afflicted the countryside and

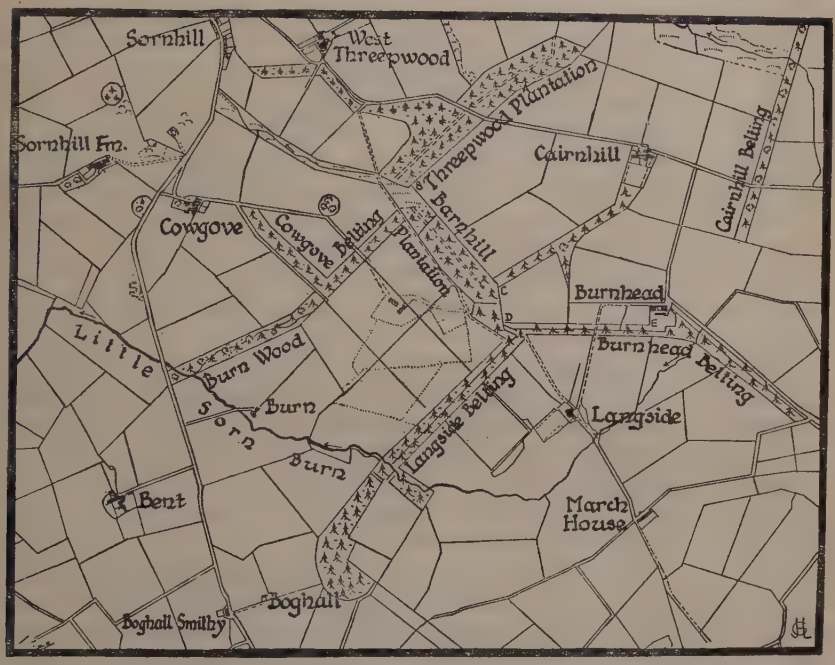


Fig. 5. The area of Fig. 4 drawn from the Six Inch maps of Ayrshire, Sheet XXIV, Third Edition, 1908. By permission of the Comptroller of His Majesty's Stationery Office. Additions (in dotted lines) from the plan by John Wilson, 1816, lent by J. Harling Turner, Esq.

mixed-arable dairy farming gave place to modern dairy-farming, utilising land more extensively and labour more economically.

[1] *The Land of Britain : Part I : Ayrshire* (London, 1937), by the present author ; *see* c. 2.

[2] *Statistical Account of Scotland* (ed. Sir J. SINCLAIR) : 1791 ; *New Statistical Account of Scotland, Vol. 5 (Ayrshire) :* 1844 ; *Board of Agriculture Reports,* 1793 (by FULLARTON), 1812 (AITON).

[3] E.g., *S.G.M.*, 1938, 54 : 129-143.

[4] Not all these survived ; some enclosures proved too small for modern farming and were later modified. *See below.*

[5] This preliminary to further enclosure was common in other parts of the Lowlands. *See* H. GRAY, *English Field Systems* (Cambridge, Mass., 1915), p. 157 ; H. HAMILTON, *Industrial Revolution in Scotland* (Oxford, 1932), pp. 36-39.

[6] HAMILTON, *op. cit.*, pp. 226-230.

[7] The older surveyors, and in certain instances the several editions of the Ordnance Survey, employ variant spellings of place-names. In this article, the versions adopted correspond with the renderings on the plan or map under discussion in the particular context.

[8] On John Wilson's *Plan of the Lands of Woodhead and Ashyard* (1813) the older enclosures along the north side of the Ayr–Galston road had been replaced by the fields of to-day and Bryriehill, Midin Dub and Hole shown as cottages with small gardens. These small pre-Enclosure farms were first amalgamated with larger surrounding farms (their inhabitants becoming labourers). At a later date, between 1832 and 1858, the surviving cottages vanished.

SOIL SURVEY IN SCOTLAND

By R. Glentworth and H. G. Dion

Soil is the mineral and organic deposit occurring at the surface of the earth which supports plant life. Its character is determined by the biological, chemical, and physical weathering processes acting on the geological substratum or parent material. These weathering processes result in the formation of more or less definite layers or horizons in the soil, often apparent in the side of a pit. The nature of a particular soil is determined by the effects of climate, vegetation, and drainage which have acted upon the parent material since it was exposed, that is in Scotland, since the time of the last Ice Age. To appreciate the soils of Scotland, and how they are classified in relation to the soils of the world, let us consider the five factors which control soil development: climate, vegetation, drainage, parent material, and age.

Soils can be separated first of all into two primary groups: those that have been influenced by weathering processes long enough to develop some differentiation into layers or horizons, and those which are too young to show any such differentiation. This separation into more or less mature and immature soils on the basis of *age* is important in so far as soil classification is concerned, but in Scotland, in two cases only are immature soils of importance: (1) the lowest river terrace alluvium which still has a tendency to be flooded at times of high water, and is therefore continuously being built up anew; and (2) those very steep hillside soils where erosion removes soil material at such a rate that they never attain a state of maturity, being continually rejuvenated by removal of the surface. However, practically all Scottish soils can be considered as more or less mature, and these types may be considered here without further reference to the exceptions mentioned above.

Climate (and vegetation, which is controlled by climate) determines the general nature of soil. In Scotland the climate is such that forest, probably coniferous, was the native vegetation. Due to our cool, humid climate, an uncultivated, well-drained soil develops a surface litter of an inch or two, under which is a layer of mixed mineral and organic matter, dark brown or black in colour, which, when ploughed, the farmer calls the " top-soil." Below this is a layer, sometimes not very pronounced, which is grey in colour and has an ashy feel. This horizon has developed because of the action of organic acids, which are produced by micro-organisms in the surface layers. These, carried down in the rain water, have caused the washing down of iron and aluminium compounds and clay out of the grey ashy layer, leaving it relatively higher in silica. The iron and aluminium compounds are redeposited in the bright brown layer which occurs below, known as the horizon of accumulation. Variations of this type of profile are very frequent in the wooded hills and high ground in Scotland—such soils are known technically as podzolic soils, the name given them by the Russians, who were pioneers in the correlation of climate and soils. There

are different soil profiles under different conditions of climate and vegetation. In Scotland we tend to find much more well-developed grey ashy layers on the higher hill slopes, where the climate is cooler and conifers are prevalent, than there are in the lower valleys where the ashy layer may be very ill-defined or absent. In the lower altitudes the temperatures are higher and the native vegetation may have been broad-leaved trees.

As a contrast to the podzolic types of soils, let us consider briefly one of the soils occurring in the dry plains region of America or Russia to which the name Chernozem (from the Russian) has been given. The surface is naturally grass-covered and the top-soil is black, being rich in organic matter. Below this is the horizon of accumulation, which in this case looks very little different from the parent material, since under the low rainfall and high evaporation little has been washed out of the surface. These soils do not get acid and are probably the world's most naturally fertile soils.

A third contrasting group of soils, called lateritic, is produced under the *warm humid* conditions which give rise to tropical forest. Here, the weathering processes are intense, rainfall is extremely high, and materials dissolved in the surface are not redeposited below but are lost in the drainage water. In addition, decomposition of plant remains by micro-organisms is so rapid that very little organic matter accumulates, and the organic acids are oxidised to carbon dioxide. These soils, therefore, have most of their nutrients and a large part of their silica washed out of them, so that iron and aluminium compounds accumulate in the surface, giving these soils a brick-red appearance. Their name is derived from the Latin for brick, *later*. Actually some of the dried surface crusts from these soils are used for building in India. It may be seen that the conditions of lateritic weathering are opposite in effect to those obtaining in podzolic soils. These lateritic soils support their forest cover by the release of nutrients from weathering rock fragments and are agriculturally productive only when heavily manured.

So far, more than twenty different "Great Soil Groups," or belts of soil, have been recognised throughout the world. They owe their several different characters to the nature of the climate and to the nature of the vegetation under which they have developed. In Scotland we probably have representatives of only three or four of these groups, but all are of the podzolic variety, differing only in the intensity of their podzolic weathering. Scotland may be considered fortunate in having fairly fertile soils—not the most fertile, certainly, but much superior to the types produced under tropical climates, for example.

The third factor, besides age and climate, in determining the nature of the soil is the parent material. In Scotland, most of our soils are developed on glacial deposits, except on the higher, steeper hills, where little or no glacial deposits were laid down, in which case the soil is developing on the disintegrating native bedrock. This provides one of the bases for the parent material separations—that is, whether the soil is *residual* or *transported*. Transported soils are further subdivided on the basis of the method of transportation—in Scotland the most important types are boulder clay and the fluvio-glacial deposits, materials of the Ice Age. To illustrate the differences in these types, it can be said that the residual soils in Scotland tend to be thin, very stony with angular fragments, and sandy with little of the finer soil particles (silt or clay). The boulder clay leads in general to

much deeper soils—it tends to be stony and may have relatively much more of the silt and clay. These fractions are important in aiding the retention of water and plant nutrients. The fluvio-glacial deposits exhibit a wide variety of characters, since they may range from gravels to clays depending upon the speed of the water from which they were deposited—and, necessarily, their properties are closely controlled by the fineness of the soil particles present in them.

The nature of the rocks of the parent material has also a tremendous importance in soil development. To take the most familiar example of Scottish parent materials, boulder clay, we can recognise a large number of variations within it, depending upon the kind of rocks from which it was formed. Sometimes the boulder clay is definitely derived from granitic rocks, or slates, or basic igneous rocks, but more often it is a mixture of two or more of the rock types of the country. Wherever the soil surveyor sees a difference, for instance of texture and colour, in the soil on the boulder clay, that cannot be accounted for by climate or drainage, he looks for a difference in the nature of the rock fragments occurring in the soil to account for the difference on a parent material basis. (It is important to remember that the difference must exist in the soil itself before this different parent material type is separated—it is not valid to map an area as a different soil type simply because the field stones one sees are different.) If it is remembered that the different horizons of a soil develop because of the washing out of material from the surface, and its redeposition below, it can be appreciated how differences in the mineralogical character of the parent material affect the development of the soil profile. Boulder clay from granite and diorite give rise to contrasting soils—under podzolic weathering the granitic boulder clay, since it is poorer in iron, aluminium and elements other than silicon, tends to be relatively more affected than the diorite boulder clay, which has a much greater proportion of its material to be removed. Therefore the diorite boulder clay develops the podzolic characteristics more slowly and is in general a more fertile soil.

To summarise thus far, in classifying a particular soil the soil surveyor decides on the basis of the nature of the well-drained profile, to which of the great climatic groups the soil belongs—in Scotland this means which of the various podzolic groups does it resemble most closely. These groups apply over fairly broad areas (unless there are large differences in altitude) since climate changes relatively slowly from place to place. Within this belt of soils belonging to a particular podzolic group, he has variations depending on the nature of the parent material, and so subdivides the particular podzolic belt into smaller areas which are uniform as to parent material as well as climate and natural vegetation. At this stage, in the Scottish Soil Survey,[1] names are given to the various classes of soils for convenience in referring to them—thus *Countesswells* is the name given to the group of soils developed on granitic boulder clay in which the freely drained member has a weakly podzolised profile. Another class of soils in the same climatic region, but developed on boulder clay derived from basic igneous rocks, is called *Insch*. These names refer to localities in which these soils are predominant. In Aberdeenshire, more than twenty of these different " parent material " groups (or Associations) have been recognised and named.

The soils within one of these Associations are still far from uniform,

however ; this will be obvious when it is considered that an Association which includes all the soil types developed under uniform climate on the same parent material may easily cover an area of thirty square miles or more, depending on the extent of that particular type of parent material. The Association of soils is divided still further into the types which differ in their degree of natural drainage, varying from excessively drained and freely drained to imperfectly and poorly drained. These are the *Associates* in the Scottish system of classification, and are the units of which the Association is composed.

Excessively free drainage may be due to light textured subsoils as in sand dunes, or to a steep position with excessive run-off, but in either case a minimum of precipitation is retained in the soil. These types are usually thin, with shallow layers, and may have a thin peaty covering. Under naturally free drainage, a soil with a medium texture retains sufficient moisture for good plant growth, but only after prolonged rain is it waterlogged, and then only for a brief period. Such types have moderate to deep top soils, and usually brown and bright brown subsurface horizons. In poorly drained soils, because of the presence of excess moisture in the subsurface horizons, the downward movement of the mobile constituents is interfered with, and the actual nature of the chemical and physical weathering processes in the subsoils may be strongly modified. As a result, instead of the brown and bright brown subsoils of the well-drained types, we find mottled (grey and brown) and blue-grey colours (indicating reducing conditions) and often a much more clayey texture. Such poorly drained soils usually occur in concave depressions which may have an extensive catchment area of sloping ground behind them, but they may also be found where the texture is clay loam or clay on what one would otherwise expect to be a perfectly freely drained slope. In the wettest position of all, peat is formed due to anaerobic conditions slowing up the decomposition of plant remains. This range of conditions—and, therefore, the range of soils—will exist on all the different parent material groups. These soil types, differentiated as a result of differences in the natural drainage, are what the farmer recognises as soil differences in his fields, and are the fundamental unit the soil surveyor maps.

It is relatively easy to distinguish about seven different associates in an association. In the Foudland Association, which is developed on boulder clay derived from slates in the weakly podzolised climatic area, the following types can be differentiated (see diagram) :—

I. *Excessively drained* stony loam on stony fine sandy loam drift. This is a shallow profile with thin horizons ; dark brown to black highly organic surface, with bright brown subsurface horizon—an arid, droughty soil.

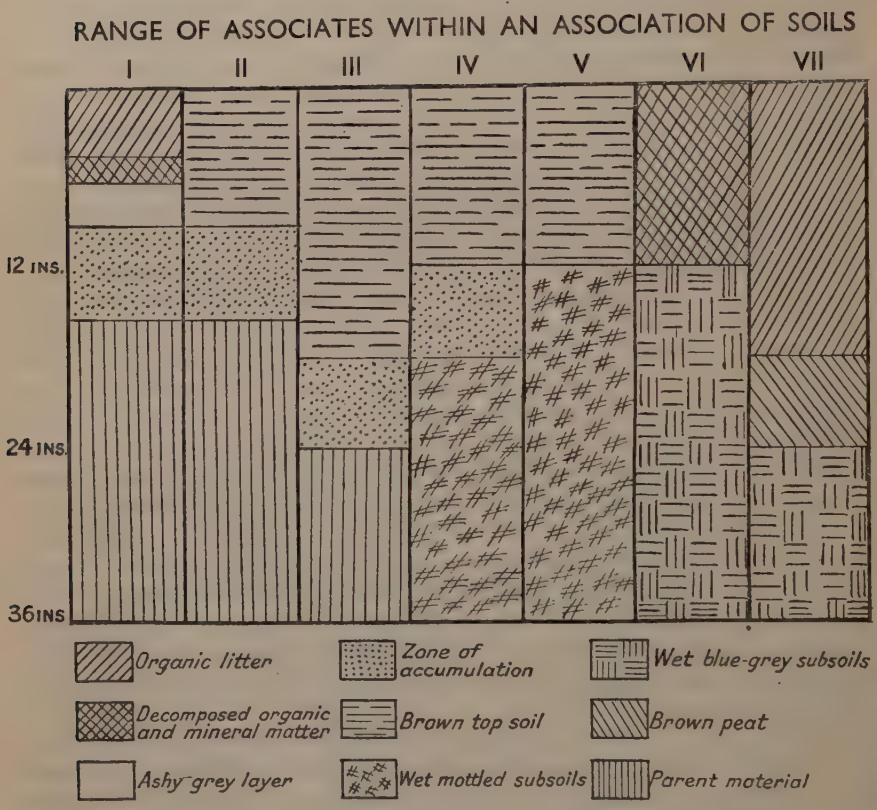
II. *Freely drained* fine sandy loam on fine sandy loam drift. It is the most frequently occurring type, with good differentiation of horizons, and has a grey brown surface and bright brown subsurface. It is a good productive agricultural soil.

III. *Deep freely drained* fine sandy loam on fine sandy loam drift. This soil is similar to II. with thicker horizons, and is agriculturally very good.

IV. *Slightly poorly drained* fine sandy loam on fine sandy loam drift. It has a grey brown surface, khaki subsurface with slight iron mottling, and is a very good agricultural soil.

V. *Poorly drained* fine sandy clay loam on fine sandy clay drift, having grey surface, low in organic matter, with cloddy structure, tending to bake, subsurface olive grey with bright iron mottling (colloquially known as "blue clay"). This is a good agricultural soil requiring artificial drainage.

VI. *Very poorly drained* black peaty loam on cloddy blue grey clay loam drift, which requires careful and thorough drainage and is not very productive.



VII. *Peat soil*—18 inches or more of black peat on dark brown less decomposed peat, resting on blue grey clay loam drift. Its productivity is dependent on the adequate control of the drainage.

It is obvious that the differences between these associates are a result of differences in their natural drainage, producing variations in their colour, structure, and texture. These different associates may have quite different cropping potentialities and mineral requirements.

In the Foudland (slate boulder clay) Association, the freely drained

(II.) associate covers by far the greater area. In contrast, in the Cruden (Old Red Sandstone boulder clay) Association, as so far mapped, the poorly drained (V.) associate is the dominant one, and in the Tarves (mixed acidic and basic igneous boulder clay) Association, the freely drained (III.), slightly poorly drained (IV.) and poorly drained (V.) are by far the most common and of about equal extent. The relative extent of the different associates is governed by the topography, the depth at which the underlying solid rock occurs, and by the texture of the subsoils.

Within the area of *one* association, the vegetative cover will vary with the occurrence of the different associates—for example, on a hillside, the well-drained soils tend to be occupied by heather and blaeberry, while the less well-drained areas apparently favour bracken ; poorly drained soils of the type described in associate (V.) are frequently occupied by a juncaceous herbage, while in the wettest position of all, sphagnum moss together with cotton grass is common. This brief correlation of soil associate and vegetative cover has many exceptions but can very frequently be found on the Scottish moors. Under cultivation, the weed flora very often reflects the drainage condition of the soil and is a great aid to soil mapping. As an example, the occurrence of buttercups in grassland is a fairly good indication that the soil will have a profile similar to type (V.) mentioned above, while with cereals and turnips, the presence of *Polygonum persicaria* (Red Shank) indicates the same condition as a rule.

With reference to the actual technique of mapping, it will be obvious from the discussion, and because of the emphasis which must be placed on the characteristics of the soil profile, that there is no satisfactory short cut to much laborious digging. In detailed surveys, on a scale of 6 inches to the mile, each field is thoroughly examined by digging holes at frequent intervals, so that there may be four or five examinations in each field. In reconnaissance surveys on the scale of one inch to one mile, where the object is to get a broader picture of the soils of the region so as to be able to contrast different districts, the survey is made less intensively. The soil is examined by digging in every second or third field, and greater use is made of surface vegetation and soil colour to reduce the still considerable amount of labour necessary in mapping less accessible areas. It will be appreciated that considerable experience is necessary before the soil surveyor can pick out his different drainage types chiefly by colour, and his different parent material groups—chiefly on textural differences.

The Uses of a Soil Survey

Obviously a soil survey and its related chemical studies consists of an inventory of the soils of a region, classifying, describing and showing their distribution on a map. The uses of such information can best be envisaged by those having an interest in some particular branch of work related to soils, whether it be administrative, planning, advisory, fundamental research, or, lastly, and most important of all, the actual production of farm and forest crops. A few examples serve to show some of the uses to which the information can be put. It is probable that some benefit would result in many particular cases if adequate information as to the nature and distribution of the various soil types of Scotland were available and fully utilised. Soil

survey in Britain, however, has not yet progressed to the point where information on a wide scale is available, and therefore the uses of such information as there is for planning and practice has been severely limited.

During these war years the subsidy granted to farms classified as " marginal " has been a controversial issue among the farming population. Occasionally it seems, because of poor farming practice, a certain farm may be classified as " marginal " and receive the benefit of a subsidy, whereas a good farmer on exactly the same soil type may not enjoy this benefit and therefore is in effect penalised for his good husbandry. If the War Agricultural Executive Committees had been able to avail themselves of adequate soil survey information, it is probable that a more precise separation of the " marginal " and above-the-margin farms could have been arrived at—as it was, there was no accurate basis for comparison beyond the judgment of the Committee. The information would also have been of inestimable help in making some of the troublesome decisions in the " ploughing-up " campaign.

The allocation of farm land for developmental and industrial purposes (and for aerodromes) is a question that has already arisen. If soil surveys of the areas in question are available, the choice of sites with the least destruction of the better agricultural land is made much easier. Co-operation in this sphere is in progress, and soil surveys for this purpose are being made at the present time.

In the cropping programme for the soils of Britain in the future some change is clearly foreseen ; we have already read of forecasts that a healthy British Agriculture will have to make a large shift towards dairying and, possibly, market gardening, for example. While there is always a certain amount of risk in such reorganisation, the chances of serious error can be reduced by the choice of farming and cropping systems adapted to the particular soil type. Sound advice on this subject presupposes the existence of adequate soil information.

The silvicultural problem of the most suitable species for any particular area is directly correlated with correct identification of the soil type—a matter which also has a bearing on the planting methods—for instance, ploughing as a pre-treatment to planting, as against directly " notching " the trees in. From soil survey information on a detailed scale, and from the forester's past experience in other areas of the same soil type, useful correlation as to what to plant and how to plant it could be arrived at.

Soil survey may find its greatest use in connection with the recommendations for fertiliser application. In the drier regions of the world, crop production may often be limited by the moisture available to the growing crop, and in general the nutritive status of such soils is quite satisfactory. On the other hand, under the climatic conditions operative in Scotland (in the podzolic region), where rainfall is abundant and nutrients tend to be leached out of the soil, the application of fertilisers almost invariably results in a noticeable response in the crops grown. It is possible under our conditions to build up the fertility of a naturally poor soil (provided its drainage is reasonably good) until it becomes quite productive, but the annual fertiliser dressing required to maintain such a naturally poor soil in " good heart " will be greater than the maintenance dressing required

to keep a naturally good soil in a similar condition. It should be emphasised that the natural classification of soils is based on the soil profile, which, although it reflects the soil's inherent productive capacity, is not based on any indication of its present state of fertility. We may find marked differences in the yield from two fields classified in the survey as the same soil type. If so, the human factor is the cause of the present disparity, which may be regarded as temporary.

In arriving at his fertiliser recommendation, the agricultural advisory chemist is guided by chemical analysis correlated with observed responses from experimental fertiliser trials in the field. The information thus gained applies to the soil types involved in the actual test plots. Extending this information to other areas presupposes a similarity in soil types, which can only be determined by soil survey. Soil survey information should be a guide to the advisory chemist in his choice of sites for field trials, so that he is enabled to arrive at proper fertiliser recommendations for each soil type. Without the information provided by soil survey his problem is much more difficult, since the range of soil types is neither known nor defined, and the area in which his field trial results will apply is likewise indefinite.

Another use to which soil survey information has been put is as a basis for the assessment of agricultural land for taxation purposes. This method of assessing land values on its inherent productive capacity, free from any bias due to the condition of the house and steading, has recently been adopted in parts of Canada, and has found great favour with the farmers.

In the foregoing, a few examples of the uses that can be made of soil survey information have been given. No doubt other equally important applications will seem obvious to those who have a particular interest in soils from other points of view.

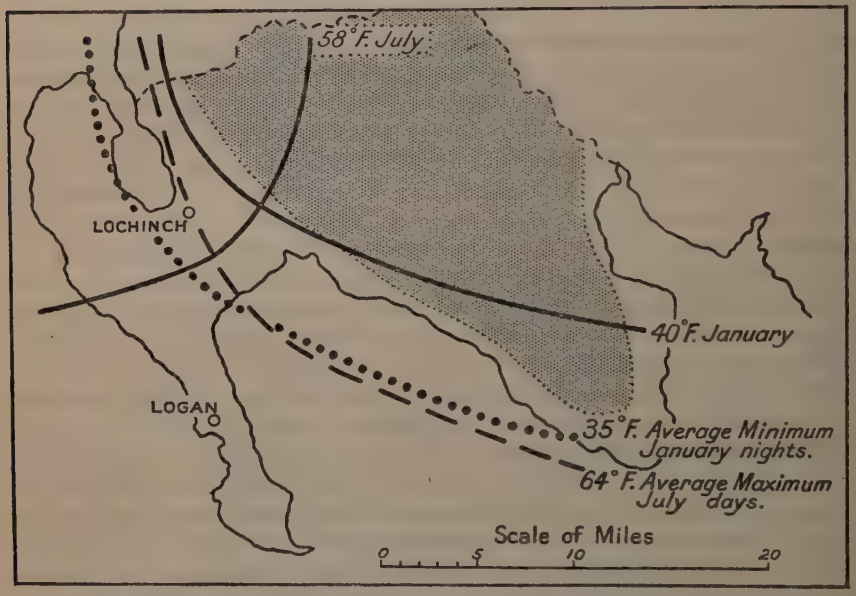
The uses of soil survey with respect to the problems outlined have been stressed—these are applications that certainly could be made in Scotland, and have been profitably applied in other parts of the world. In the United States, Canada, and Russia, for example, where the soil as the basis of agriculture has been recognised as a vital national asset, large organisations of soil surveyors, soil chemists and pedologists are working steadily on mapping and investigating the soils of their countries. In Britain, however, the personnel involved are relatively few in number, and the areas surveyed consequently not large. In Scotland, it is hoped to complete a survey [1] of Aberdeenshire on a scale of one-inch to the mile in 1946. Localised areas in other parts of Scotland have also been surveyed for specific purposes, and, at some future date, maps and reports applying to the whole of Scotland should become available.

[1] Macaulay Institute for Soil Research, Craigiebuckler, Aberdeen

PLANT INDICATORS OF A LOCAL CLIMATE

By Robert M. Adam

Like many other generalisations, adverse criticism of the climate of Scotland may be due to a lack of appreciation of local differences. In the extreme west of Galloway, the average minimum night temperature in January is above 35° F., and the average maximum day temperature in July approximates 64° F. The range between minimal and maximal mean monthly temperatures (40°–58° F.) [1] is comparable to that of Oporto (49°–67° F.) [2] or of Hobart (46°–62° F.) or Santiago (47°–68° F.).[3] The moisture-laden westerly winds are responsible for an average annual rainfall of about 38 inches in the shore areas of Wigtownshire ; at the Mull of Galloway, the



Wigtownshire. January and July isotherms, and average minimum January night and average maximum July day temperatures. Stippled area : average annual rainfall over 40 inches. (After D. Sutherland.)

rainfall averages about 27 inches, equivalent to the average for Funchal. As the climate of Wigtownshire has been described in detail previously, [1, 4] it may suffice here to remark that, in the coastal area of the county, climatic conditions are comparable to those prevailing under maritime influence in lower latitudes, and that such climatic similarities may be reflected by the plant life.

It would seem that the successful cultivation of exotic plants out of doors in some localities in Scotland provides a reliable and useful indication of climate. Observations on the health and reactions of exotic plants to their new environment will be found most instructive when applied to arboreal and shrubby species. Woody plants take longer to reach maturity, and in the process of development undergo a trial period which can denote the

ECHIUM
(Teneriffe)

CHAMAEROPS
(North Africa)

CORDYL
New Zeal

IN SCOTLAND

CORDYLINE AUSTRALIS
LOCH INCH, WIGTOWNSHIRE

CORDYLINE AUSTRALIS
LOGAN, WIGTOWNSHIRE

CKSONIA
NTARCTICA
OGAN

fitness to withstand the type of weather to be endured. Furthermore, should such plants produce flowers, fruit, and set ripe seed, evidence is present to indicate health and vigour and successful adaptation to the habitat. Less satisfactory but useful observations can be derived from herbaceous and bulbous vegetation.

A recent visit was paid to two gardens in Wigtownshire, Loch Inch—a few miles east of Stranraer—and Logan, some fifteen miles further south, on the long promontory which terminates at the Mull of Galloway. Logan is the more interesting of the two gardens. Within its bounds grows an unrivalled collection of exotics which transform the scene and render it difficult to reconcile with Scotland's much maligned climate. Gathered together are plants from distant regions: side by side, Canary Island flora mingles with gay flowered shrubs of California. Curious lobelias from Ruwenzori in Central Africa grow cheek by jowl with calceolarias from the Andes, and big tree ferns from eastern Australia flourish in the shade of cabbage palms.

The garden is within sight and sound of the sea, and high winds may carry salt spray over the site. Damage from wind has been modified by the judicious planting of trees, and several old walls add useful protection and wind-breaks. In summer low clouds frequently form during northerly winds and drift across the peninsula, giving rise to humid conditions at ground level. The soil conditions are favourable for plant cultivation —a light loam of moderate depth and of the quality to suit early potatoes. To enumerate details of the contents of Logan or Loch Inch gardens is outwith the scope of this note. Sufficient for its purpose is mention of a few of the species that exhibit outstanding vigour amid surroundings so different and remote from their native habitat.

Palms strike the exotic note as soon as the garden is entered.[5] There are two species which flourish. The cabbage tree (*Cordyline australis*), a native of New Zealand and some of the islands lying off the north coast, has grown at the rate of two feet per year, and forms an avenue which is especially attractive in the flowering season. The other palm is a North African species, *Chamaerops excelsa*, which has quite a different form and is usually regarded as the one with the most northerly distribution.

After the palms, the healthy appearance of the tree ferns (*Dicksonia antarctica*) is noteworthy. These denizens of the damp forests of eastern Australia reproduce themselves readily, and one specimen which arose in this way attained a height of eight feet and a girth of four feet in twenty years. Another vigorous specimen has developed a crown of fronds which measured sixteen feet in circumference.

Among the unusual shrubs to grow and flower out-of-doors in Scotland is the aromatic bark (*Drimys Winteri*). This plant has a wide range of distribution, being found from Chile and along the Pacific coast as far north as Central America. A specimen at Logan is over twenty feet high and annually displays the gay clusters of ivory white flowers with fine effect. The plant is an evergreen which used to furnish an aromatic tonic prepared from the bark.

A giant of the borage tribe, *Echium pininana*, is a unique feature in the garden. This native of Teneriffe grows to a height of sixteen feet and bears long, erect spokes of lavender blue flowers.

The tall *Lobelia Tupa* is another interesting plant, a native of Chile not often seen. It is from this plant that Indian tribes obtained their arrow poison. The parrot's beak (*Clianthus puniceus*), a legume from Chile, adorned some of the walls with its curiously fashioned flowers from which its name is derived. *Calceolaria violacea*, a common plant around Valparaiso, makes a great show at Logan.

And among the bulbous exotics the recently introduced *Nerine Bowdeni* provides a native of South Africa with a place in this unusual collection. *Solanum crispum* from Chile, and *Ceanothus* from California, may serve to complete the picture of this odd corner of south-west Scotland, where exotics thrive on other estates also, and surely may be regarded as climate indicators. The foregoing observations may perhaps also serve to stimulate interest in the study of the correlation between flora and climate in other strictly circumscribed localities in Scotland or elsewhere.

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[2] MATTHEWS, H. A. "A Comparison between the Mediterranean Climates of Eurasia and the Americas." *S.G.M.*, 1924, 40 (*3*) : 150-159.
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[4] SUTHERLAND, D. "The Shore Vegetation of Wigtownshire." *S.G.M.*, 1925, 41 (*1*) : 1-23. Rainfall and temperature maps.
[5] See photographs (by R. M. ADAM) facing pp. 24-25 and p. 33.

LAND RECLAMATION IN THE OUTER ISLES

By Professor A. G. OGILVIE, O.B.E., F.R.S.E.

THE problem of reclaiming foreshore in the Northern Isles and the Outer Hebrides differs widely from that presented on the Mainland as discussed in a recent paper.[1] This outer fringe of Scotland is swept by frequent gales and is attacked by waves such as might well baffle the engineer, a fact which suffices by itself to cause hesitation in suggesting that any reclamation by building sea-dykes is feasible. Nevertheless, since there are large areas of foreshore both in Orkney and in the Long Island, it is perhaps desirable to examine the question more closely : all the more so because the storm-waves themselves have thrown up protecting bars that have partially shut off the bays or have linked islets and skerries together. It is tempting, then, to think of reclamation as being easy because it has been begun by natural process. But it is likely that most of these wave-built structures are composed of very porous material, such as shell-sand, and many owe their height above sea-level to accumulation of blown sand. Others, in the Hebrides, are portions of raised beach formed when sea-level was lower. Consequently, sea-water would presumably be liable to percolate to the protected flats even if it were excluded elsewhere by impervious dykes. Furthermore, it may be doubted if the tide would fill the enclosed basin with suitable material for agricultural use. Near most of the sites referred to on the Mainland of Scotland there are rivers to provide silt much of which is fine enough to be carried in suspension. This, deposited in the still water, will provide the future soil and at the same time will seal the interstices of

the enclosing dyke. But on the outer islands the rivers are negligible and the supply of fine silt, likewise.

For all these reasons it seems inappropriate to include the foreshores of the three island groups with those already discussed and to give measurements for particular localities. On the other hand, it is suitable to draw attention to the existence of large foreshores more or less protected by natural accretion.

In Shetland, the foreshore in general is so narrow as to be invisible on the one-inch map ; the only sites calling for mention are on the east coast of South Mainland, the small bay-heads of the sheltered Aith Voe and the Pool of Virkie.

In Orkney, the largest partly enclosed foreshores are on Sanday, at the heads of Otterswick and Kettletoft Bay, and the Cata Sand. On Mainland there are three bay-heads in Deer Sound, and at Kirkwall, the smaller Peerie Sea which the town may reclaim some day for an urban purpose.

The great expanses of foreshore in the Long Island are more or less open to the Atlantic, and although Nature has done much to enclose them, the barriers are doubtless largely porous. There are wide stretches of this type on the west coasts of Harris and North Uist, while Benbecula is linked to its neighbours the Uists by the well-known sands uncovered at low tide. On the east coast, only two localities call for notice, both in Lewis. The small estuary of the River Gress appears to have become almost dry without artificial aid. Immediately north of Stornoway is the Cockle Ebb which offers satisfactory conditions for reclamation, and this has been proposed in the first Report of The Lewis Association.[2] The favourable circumstances outlined in the Report, and amplified in a letter from the Secretary of the Association, are these : The natural enclosing bar is protected, seaward, by a broad sandbank covered only at high tide. Sea-dykes of only about 350 yards, in two sections, are required to complete the enclosure of some 430 acres from the sea, and this would, further, improve the quality of another 300 acres now insufficiently drained. The sand of the Cockle Ebb rests upon peat, and salt marsh has begun to form on the sand. Herring offal is available in abundance, and a system of sewage disposal in this vicinity may soon be necessary. There is thus the prospect of making the soil very fertile, and such land is badly needed to solve the problem of the milk supply of Stornoway, of which over half comes by rail and sea from Inverness. Here, then, natural and economic conditions both seem to favour reclamation.

In view of the probable difficulties of marine reclamation in the Islands, it is worth considering whether agricultural land might not be recovered from fresh water. The west coasts of North and South Uist and of Benbecula are fringed by the sandy machars behind which lies a maze of fresh-water lakes of all shapes and sizes, most of them underlain by boulder-clay. In this zone behind the machars, a good deal of drainage has been effected by which marginal marsh has been turned into valuable land. This drainage of marsh has not involved pumping ; but, obviously, to drain large lakes other methods would be needed. Some lochs in the Long Island and in Orkney no doubt have their uses—for water-supply, for local water-power, actual or potential, and for fishing ; the latter use might perhaps be greatly

increased by " fish-farming." But the total area of lakes is very large, and one is tempted to make the suggestion, put to the author by an Orcadian, that some lochs situated near the sea be drained. Sounding and experimental sampling of the bottom would determine the suitability of the future soil ; costs of drainage channels or siphons and of the installation of pumps, if required, should be easy to estimate. There would remain the question of power, whether oil, electricity, or wind. It would certainly appear that the latter could be relied upon among the Outer Isles ; but the requisite apparatus may not yet exist. It would be a wind-mill which does not break down with the wind at gale force. The " gale-mill " would seem to be needed to enable the Isles to capitalise their great natural endowment in wind.

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[1] Ogilvie, A. G., " Land Reclamation in Scotland," *S.G.M.*, 1945, 61 (*3*) : 77-84.
[2] The Lewis Association. *Ibid.*, p. 94.

LAND UTILISATION IN THE LOTHIANS

Review by Catherine P. Snodgrass

This Report[1] gives a careful, painstaking and comprehensive account of the important farming region of the Lothians amply illustrated by interesting and instructive maps and diagrams. It is divided into sections more or less along the usual lines of the Reports of the Land Utilisation Survey :— I. Introduction ; II. Outline of physical background : III. Land utilisation ; IV. Land use regions ; V. A historical study of land use in the Lothians.

The short, but quite apt, introduction is chiefly concerned with defining the region and explaining that the three Lothians have been treated together because of their essential unity and in order to avoid repetition. It is furnished with the usual maps showing parishes. The fear raised in some minds by Dr. Stamp's emphasis on Mr. Scola's work in the library of the Cambridge School of Geography, that this report would be too much based on book work from a distance, has been largely dissipated by evidence of work in the field, though no doubt certain misconceptions would have been avoided by a worker more thoroughly steeped in the past and present of the region.

Section II deals first with geology, relief and soils. It would seem that too much emphasis has been laid on details regarding underlying rocks and not enough on altitude and landforms, including slope and degree of dissection. Moreover, the subject-matter is arranged to too great an extent from the geologist's rather than the geographer's or land-user's standpoint. Some of the geological history might well have been omitted and the treatment of the underlying rocks, drifts, and soils made more on a regional basis. It seems undesirable to strain after a geological division, which would be suitable in regions such as the English Plain or the Paris Basin, when the chief physical divisions are obviously those of altitude and topography. For example, the juxtaposed maps of rough grazing and geology and their

[1] *The Land of Britain : The Report of the Land Utilisation Survey of Britain.* Edited by L. Dudley Stamp, B.A., D.Sc. Parts 16-18. *The Lothians.* By P. M. Scola, B.Sc.(Econ.). London : Geographical Publications Ltd., 1944. *Price 4s.*

underlines (p. 127) overstress the relationship of rough pasture to rock type and fail to point out (though this is partially rectified later in the text) that this relationship is indirect, through altitude and slope. In dealing with peat (p. 139), the poor natural run-off of the upper peneplane is not brought out; in fact this most significant physical feature of South Midlothian and West Lothian is not recognised in the text. In like manner on p. 127, the map of settlements and sands and gravel deposits on p. 137 suggests causal relationships which in many cases at least are merely coincidental, the primary reason for the location of the settlement being a river crossing or a nearby coal mine, while many of the settlements, including the largest and many of the oldest, lie quite clear of sand and gravel deposits. Treatment of soil, though necessarily hampered by absence of a soil survey and paucity of other information, might have been more adequate in view of published papers by W. G. Ogg and others. In dealing with the soils of the Lammermuirs, Moorfoots and Pentlands, the writer includes Auchencorth and Cobbinshaw mosses, which earlier in the chapter he included in the lowlands. His subsequent reference to upland moors and their possible reclamation leaves the reader rather indefinite as to which he is meaning. On the moors of the upper peneplane, forest is a possibility as well as permanent pasture (cf. A. G. Oglivie, "Debatable Land of Central Scotland," *S.G.M.*, 1944, 60 (2) : 42-45).

Taking into account the inadequacy of data, the discussion on climate is good. One significant point about West Linton has, however, been overlooked, namely, that the record was kept in low-lying ground peculiarly susceptible to frost in calm weather, in fact in a frost hollow, so that its minimum temperatures and winter means cannot be considered as quite representative of land about the 750-feet level in the upper part of the Midlothian Basin. An interesting discussion of the West Linton temperature record and the effect of topographic conditions on temperature was given in the *Journal* of the Scottish Meteorological Society for 1908 by the observer, the Rev. J. S. Begg.

Section III, which takes up more than half the Report, deals in succession with the distribution of the different types of land use; arable land and crops—matters of great importance on a region renowned for its arable farming; permanent grass and stock—rather misleading to include stock under the heading "permanent grass," as the latter plays only a minor part in the stock farming of the area, rotation grass, fodder crops and rough grazing being much more significant in this respect; heathland, moorland and rough grazing; forest and woodland; orchards, market gardens and nurseries; settlements; farming in the Lothians. The first, second and fifth of these sections are lavishly illustrated with dot and other maps; but one would like to know to what extent the former were based on actual field work, and how much on hypotheses relating crops, etc., to physical environment. Many parishes include a variety of physical conditions and, if the real distribution within these parishes is to be shown, one of the above methods must have been used. The significance of the maps depends to a large extent on which it was. The comment on the vegetable map rather implies the second.

One or two detailed points may be noted. "Suitability of soil is not such an important factor for wheat as for other cereal crops" is a statement applicable neither to the Lothians nor to Europe in general. It is true that barley has very exacting soil requirements, but those of wheat are surely more exacting than those of oats, with special reference to Scotland, or of rye and oats in Europe. It is doubtful whether turnips can be considered a

cheap winter food : no doubt they are often cheaper than imported foodstuffs, but the expense involved in growing them (singling and weeding) has been a potent factor in the recent great decline in their cultivation both in the Lothians and elsewhere. In explaining the high proportion of permanent grass around Edinburgh, mention of parks, playing fields and golf courses is omitted. Likewise, in dealing with the difference in dairying development as between East Lothian and the region west of the Pentlands, the influence of rainfall and soils is not mentioned. The sheep bought in summer by farmers in the intensive arable belt are fed mainly on " foggage," i.e. hay aftermath, in late summer, and their finishing for the fat market on turnips is not very aptly described by the expression, " eked out " with roots in winter.

The map of settlements and communications is most interesting and useful, although, unfortunately, the author has not had access to some of the recent unpublished research on this topic, so that his text includes some misconceptions. To say that Haddington is unusual in the Lothians is correct. To say it is quite untypical of Scotland is too sweeping, in view of the many mediaeval burghs of the East, little modified by modern industrialism and in some cases associated with important ecclesiastical foundations, e.g. Elgin. The historical plan of Haddington was typical of burghs on both sides of the North Sea in mediaeval times and hence is likely to resemble some of the towns of eastern England. The importance of the period of mediaeval North Sea trade is not mentioned in dealing with the coastal settlements. The argument that settlement in the Lothians was dispersed on account of the frequent invasions seems rather unusual. It is generally considered that danger of attack in earlier times led to agglomerated settlements. Be that as it may, the actual highly dispersed rural settlement pattern dates only from the late eighteenth century and is not of great antiquity. Though the author rather decries any ethnographical, or as he erroneously terms it, racial, explanation, it is probable that the earlier type of " ferm-toun " settlement composed of eight or so joint-tenants had some traditional *raison d'être*, though the frequency with which water can be obtained in a region of glacial deposits removes one powerful stimulus to the large agglomerated village type. As far as East Lothian is concerned, the statement that the farm workers tend more and more to live in villages is not of general application. Recent detailed field work in that county has revealed the unexpected fact that the villages contain few agricultural workers, but what the future may bring is another story. Mr. Scola's assumption, in dealing with mining, that the total population is fully four times the number of those classified as " in occupations," is not borne out by the figures for the counties and large burghs for which data are given in the Census, e.g. in West Lothian county there is one person " occupied " to every two-and-a-half of total population. Moreover, it was not generally the exhaustion of the oil-yielding shales that led to unemployment of shale miners west of the Pentlands in the inter-war years, but certain commercial arrangements.

In Section IIIc, useful tables reveal the interesting fact that the average size of holding in the Lothians is fully 50 per cent. greater than that in Scotland as a whole, but within the zone East Lothian has an average size of almost 160 acres, West Lothian one of fully 80, while Midlothian occupies an intermediate position. In the Lothians as a whole fully 50 per cent. of the farms are under 50 acres, 20 per cent. between 50 and 150, 15 per cent. between 150 and 300 and 12 per cent. over 300. After discussing the number of male and female, regular and casual workers in the three counties

and comparing them on a basis of number per acre of improved land, the author then deals with various classifications of farming type and gives some descriptions of types according to his own scheme of classification. This last sub-section is followed by Section IV, on land use regions, which contains a very useful map of these regions. This is not easy to make on account of the gradual transitions and exceptional cases. In spite of the difficulty, it would probably have been better if the sections on land use regions and farming types had been combined, for the land use regions map is in essence a map of predominant farming types. It would have added greatly to the usefulness and interest of the map, however, if typical farms of each type had been mapped and described.

Information for the historical study of land use has been drawn largely from the usual sources—the old and new Statistical Accounts (1791 and 1845), articles in the *Transactions of the Highland and Agricultural Society* (late nineteenth century), and for the latest period from the official Agricultural Returns, but the author's inadequate background knowledge of Scottish history has to some extent detracted from the value of an otherwise interesting section. This is especially applicable to his account of land use prior to the Agricultural Revolution of the late eighteenth century. Though it is true that the agricultural reforms, which largely originated in Flanders, affected England earlier than Scotland, so that in the early eighteenth century the former was generally much more advanced agriculturally, it was hardly fair of the author to take all his quotations about earlier conditions from the seventeenth century, after several centuries of a " scorched earth " policy associated with the Wars of Independence and the seventeenth century civil and religious strife must have caused considerable deterioration both in the appearance of the countryside and in the mental and moral attitude of the people towards putting their energies and resources into improving agriculture. Some old books on the Border country draw attention to the decline in everyday morality and the changes in agriculture occasioned by the repeated invasions with their harryings and burnings of abbeys, towns and castles, farmsteads and crops. For a more just assessment, some reference to conditions during the twelfth and thirteenth centuries, the " Golden Age of S.E. Scotland," i.e. the period following the agricultural advances initiated by the great religious houses of the Middle Ages, should also have been included. Moreover, the seventeenth-century English writers quoted reveal no little ignorance of dietetic values when they decry the great consumption of two of the most valuable foods—herring and oats. In dealing with the period 1723-1846 (p. 202) the author has not sufficiently freed himself from the commercial outlook of the nineteenth century, with its preoccupation with markets. He does not seem to realise that to the farmers of the early eighteenth century the main purpose was the production of a food supply for their families during the succeeding months, and hence that many of the black cattle were killed and salted in autumn for this purpose. The historical survey is completed by an analysis of the statistics for the period 1866-1938, illustrated by a large number of statistical diagrams showing trends. But one very important factor, especially significant in Midlothian, has been omitted in explaining the decrease in improved land, namely, the extension of towns and of the city of Edinburgh. In Midlothian and East Lothian this has taken place almost entirely on good, and often on first-class, arable land.

Section VI concludes with a few paragraphs entitled " Summary and Prospects." This section is disappointing, old-fashioned in outlook, and cynical—the writer still assessing economic activities primarily by financial

and not by human values. No mention is made of the United Nations Conference at Hot Springs and of the solemn pledge to see that all the people of this and other countries have an adequate diet on a full health standard, and no attempt is essayed to assess how the fulfilling of this pledge would affect the Lothians. It would probably give them a much greater future both from the point of view of the production of valuable foods needed by human beings and from that of the mental and spiritual satisfaction of the farming people themselves. Instead, the author adopts a defeatist attitude and suggests a return, more or less, to the insane conditions of the 1920's and 1930's. On the one hand, during that period there was the nightmare of futility, frustration and uncertainty, irrationally fluctuating prices engendering a lack of confidence which in its turn resulted in the avoidance of long-term improvements and the under-use of much land, and on the other hand, a people large sections of whom (at least two millions out of Scotland's five millions—Orr and Elliott's estimate) suffered from malnutrition, with an infant death rate higher than every other English-speaking country and every country of Western Europe except Spain and Portugal, a large child death rate and a high incidence of avoidable illness and incapacity. It is comforting to note from a recent speech (Wm. Young, Edinburgh, June 27th, 1945) that the organised farmers of Scotland exhibit no such flight from realism, but a keen appreciation of the absolute necessity of the adoption of a Full Nutrition Policy and the use of land here and elsewhere for the adequate nutrition of the world's people. And in October, 1945, the United Nations Food and Agriculture Organisation has been set up to apply this policy.

NOTES AND REFERENCES

EUROPE

EUROPE : SELECTED CLIMATIC FACTORS relevant to structural and insulation requirements for houses have been studied by sub-committees of the Inter-Allied Committee for Physical Planning and Reconstruction. The enquiry was limited to information likely to be of immediate practical value, and notes and maps have been prepared and issued by the Research Maps Office, Ministry of Town and Country Planning (1946. Fcap. Pp. 6, mimeographed. 10 maps). The maps of Europe (1 : 10,000,000) show : mean annual maximum and minimum temperatures ; mean annual maximum temperature range ; number of months below 12° C., 6° C., and 0° C. ; assessment of annual domestic fuel requirements ; average annual number of days with winds of force 8 or over (Beaufort scale) ; generalised snow conditions ; generalised maximum depth of frost penetration (in centimetres).

PLANNING AND CLIMATE. The attention paid to local climatic conditions in selecting sites for building and other purposes is reflected in a Report by Dr. A. Geddes which has been issued by the Association for Planning and Regional Reconstruction (Report No. 38, 1946. Pp. 20, mimeographed. 7 figs. *Price* 5s.). In planning, climatic data may be required on a national or regional scale, or on the different scales of a district or locality, of a site, or of the lay-out of buildings, walls, hedges, and other structures which may modify the climate of the site. Dr. Geddes instances Kinlochleven as a glaring example of faulty location, site, and lay-out. The relation between health and local climatic conditions is also discussed, and simple techniques of site reconnaissance and lay-out are noted, such as air temperature readings on a hill slope, observations on frost hollows, growth of trees, etc., and are illustrated by diagrams.

FROST AND THE FRUIT-GROWER. In the selection of profitable orchard sites, freedom from damaging spring frosts is an essential consideration. The importance of the relation between local topography and cold air drainage is stressed by R. Bush (*Geography*, 1945, 30 (*3*) : 80-86), who studied the problem on Bredon Hill and on Hampshire hillsides where the depth of cold air in recipient areas was recorded.

CUMBERLAND DEVELOPMENT. In "A Memorandum on Cumberland with Special Reference to the Development Area" (pp. 11. Sketch-map. Whitehaven : The Cumberland Development Council Ltd., 1945), Professor G. H. J. Daysh examines population trends in relation to economic conditions and the location of industries. About three-

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quarters of the population are concentrated in the coal and iron mining areas and in nodal sites. Professor Daysh pays due regard to contrasting conditions in West Cumberland and the Lake District and makes valuable suggestions concerning the location of new industries, improvement in transport and other services and in housing, and co-ordination in Government and non-Governmental action. The recommendations are clearly illustrated on a sketch-map (4 miles to 1 inch).

THE GROWTH OF BRISTOL. By Henry Rees. *Economic Geography*, 1945, 21 (*4*) : 269-275. 4 figs.

SETTLEMENT PATTERNS IN THE MIDDLE TEIFY VALLEY. By Emrys Jones. *Geography*, 1945, 30 (*4*) : 103-111. 8 figs.

OIL-SHALE AND THE SHALE OIL INDUSTRY IN SWEDEN. By N. Sundius. *Ymer*, 1943, 63 (*1*) : 1-16. 6 figs.

POPULATION TRENDS IN SWEDEN. By E. Höijer. *Ymer*, 1944, 64 (*2*) : 114-131. 4 figs.

SOUTH SLESVIG. The river Eider formed the boundary of South Jutland from the ninth century to 1864, when the Germans moved the frontier north to the Kongeaa. The 1920 plebiscite resulted in the return of North Slesvig to Denmark, but in spite of eighty years of German influence, the inhabitants of South Slesvig remained more Danish than German in character and outlook. At the present time, displaced Germans are admitted to South Slesvig, and, according to pamphlets by P. Meyer (1945) and by C. Eskildsen (1946) issued in Copenhagen [see p. 47], a lack of understanding of the problem on the part of the British occupation authorities has resulted in a "pressure against all that is Danish . . . in some respects more severe than in the rigorous time of the Germans." The plea for reunion of South Slesvig with Denmark is supported by the Primate of Denmark, Bishop H. Fuglsang-Damgaard in "The Problem of South Slesvig and the Christian Church" (Crown 8vo. Pp. 24. Copenhagen : H. Hagerup, 1946).

THE FRENCH RURAL COMMUNE. A comparative study of the boundaries and areas of the 38,014 communes in France would result in a fruitful revelation of the interdependence of geographical, economic, and social factors, and illuminate both the history of settlement and topographical changes. This aspect of human geography is discussed in a paper by André Meynier (*Annales de Géographie* (1945, 53-54 (*295*) : 161-179. 10 figs.), which is illustrated by extracts from the *Carte de France* (1 : 80,000, reduced to 1 : 100,000), showing typical boundaries of communes in the Champagne Pouilleuse, Burgundy, on Cape Corse, in Aubrac, Brittany, the Lannemezan plateau, and the upper Jordanne valley in Cantal.

THE VINE IN BAS LANGUEDOC. In the long-settled region of Bas Languedoc, agriculture and pastoralism once provided a great variety of raw materials for human needs, moreover the rapid gradation from coastal plain through plateau to high mountain permitted co-operation between different modes of life. The expansion of the vineyards since the end of the seventeenth century and development of the vine monoculture in the lowlands, the phylloxera crisis, the countering of competition from Algeria by the co-operative movement (since 1901), and the question of alternative crops, are discussed in the *Geographical Review* (1946, 36 (*1*) : 67-79. 3 figs.) by S. Agnew, who also draws attention to rural depopulation trends and to the need for a restoration of the relationship between viticulture and industry.

IBERIAN NAVIGATION IN ANCIENT TIMES. From the texts of Polybius, Pliny, and others, and from archaeological data, A. Garcia y Bellido has provided what may be considered the first chapter of the history of Iberian navigation (*Estudios Geograficos*, 1944, 5 (*16*) : 511-560. 23 figs.). Riverine, littoral, and marine traffic is treated in turn, and the information is well illustrated.

LONGITUDINAL PROFILES OF THE RIO GUADIATO AND ITS PRINCIPAL TRIBUTARIES. By A. R. Carbonell. *Estudios Geograficos*, 1944, 5 (*16*) : 561-590. 2 maps (1 : 400,000 and 1 : 200,000. Topographical and river profiles).

THE ORIGIN OF THE ALPS. Some 68 papers, published during the present century, on the origin and tectonics of the Alps are discussed by J. Cadisch in *Verhandlungen der Naturforschenden Gesellschaft in Basel*, 1943, 54 (1942-43) : 32-58. 1 fig. Tectonic sketch-map.

AJOIE. The Ajoie plateau region north of the river Doubs and Mont Terrible to the river Cauvate is described by E. Erzinger in *Mitteilungen der geographisch-ethnologischen Gesellschaft in Basel* (1943, 6 : 1-138, 3 plates. 3 figs. 16 photographs. Bibliography). The monograph deals with landforms, underground rivers, and morphogenesis of this karstic sub-region of the Jura, and is documented by 118 references.

THE QUESTION OF TRIESTE. In a pamphlet issued by the British-Italian Society (1945, Crown 8vo. Pp. 24. *Price* 6*d*.) Dr. Isabella M. Massey provides some data in support of the non-Fascist Italian point of view in regard to the complex problem of Trieste. The case is fairly presented, and the settlement for Venetia Julia recommended is an approximation to the Wilson line of partition. The author concludes that "no solution

can ever be devised that will pacify the extreme nationalists, be they Italian or Slav." [Cf. *S.G.M.*, 1945, 61 (*3*) : 100.]

THE HYDROGRAPHY OF THE BOSPHORUS. By P. Ullyott and O. Ilgaz. *Geographical Review*, 1946, 36 (*1*) : 44-46. 16 figs.

ASIA

THE BRITISH AND SOUTH ARABIA. By H. Ingrams. *United Empire*, 1945, 36 (*5*) : 173-178.

LIFE IN BORNEO. Some twenty-eight photographs illustrate an article on " Keeping House in Borneo," by Virginia Hamilton (*National Geographic Magazine*, 1945, 88 (*3*) : 293-324), and include views of the southern part of the island, also of Sarawak.

HISTORICAL VARIATIONS OF CHINA'S FRONTIERS. *Pacific Affairs*, 1945, 18 (*4*) : 346-354.

SZECHWAN DURING THE WAR. The impact of the war (which began in China in 1937) on one of the most backward of the provinces is described by Dr. H. L. Richardson (*Geographical Journal*, 1945, 106 (*1-2*) : 1-25. 16 photographs. Map). An account is given of the geography of Szechwan, the irrigation of the Chengtu Plain, town and village life, farming, local industries, transport, and education and research. The article is accompanied by a map (1 : 5,000,000) which embodies results of Dr. Richardson's and other surveys and shows contours at 1000 metres interval, rivers, motor and other roads, and settlements in Szechwan and its borderlands.

MANCHURIA : AN INDUSTRIAL SURVEY. By A. J. Grajdanzev. *Pacific Affairs*, 1945, 18 (*4*) : 321-339.

POPULATION TRENDS IN JAPAN. By I.-B. Dahlenius. *Ymer*, 1944, 64 (*2*) : 132-160. 9 figs.

AFRICA

NORTHERN TRIPOLITANIA : A DRY MEDITERRANEAN COASTAL REGION. By A. J. W. Hornby. *Economic Geography*, 1945, 21 (*4*) : 231-251. 13 figs.

DISPOSAL OF ITALIAN AFRICA. By S. H. Longrigg. *International Affairs*, 1945, 21 (*3*) : 363-369. Sketch map.

STRUCTURE AND RELIEF OF SOUTHERN LIBYA. By Hassan Awad. *Annales de Géographie*, 1945, 53-54 (*295*) : 192-203. 2 figs.

EROSION IN THE SUDAN. By A. L. Howard. *Nature*, 1946, 157 (*3982*) : 233.

THERMAL ACTIVITY IN THE EASTERN RIFT VALLEY. By Lieut. P. C. Spink, R.N.V.R. *Geographical Journal*, 1945, 105 (*5-6*) : 197-207. 8 photographs. 1 map.

POPULATION OF THE BELGIAN CONGO. The native population approximated 10,500,000 at the end of 1944. Europeans numbered 36,080 (Belgian Congo and Ruanda-Urundi), of whom 23,643 were Belgians, according to returns as at December 31, 1944. (*African World*, 1945, 171 (*2233*) : 138).

THE RIVER ZAIRE OR CONGO. At the end of the fifteenth century, the name Congo was applied to the territory and not to the river. The latter was named Nzadi (big river) by the natives and Zade or Zare in Portuguese chronicles. Castilian influence appears to have been responsible for the modification to Zaire, according to S. Frazão (*Boletim da Sociedade de Geografia de Lisboa*, 1945, S 63 (*1-2*) : 41-47), who discusses the origin of the names of the river, with special reference to reports made to Pope Paul III during the first half of the sixteenth century.

RECENT PROGRESS IN ANGOLA. Developments in Angola since 1938 have been on a considerable scale and based on geographical, geological, agricultural, and technical surveys. In a progress report issued by the administration (Lisbon, 1945 ; pp. 55) are enumerated the developments achieved and planned in education and sanitation, agriculture and mining, and in communications and transport. The distribution of administrative, educational, medical, veterinary, telegraph, and other services is shown on a map (1 : 8,000,000).

THE PORT OF LOBITO. The completion of the Benguela Railway led to the rapid development of its terminal port on Lobito Bay. The harbour of Lobito is the subject of a brief report (20 pp. 2 plans. 12 photographs) by the Director of the Harbour, R. Serrão, issued (in English) in 1945 by the Colonial Ministry in Lisbon. To cope with the increasing local and transit traffic, extension of quay accommodation and provision of other facilities have been planned. The report includes traffic statistics to 1944.

EROSION AND SOIL CONSERVATION IN THE UNION OF SOUTH AFRICA. By J. P. Van Aartsen. *International Review of Agriculture*, 1943, 34 (*5*) : 153 T-201 T.

THE PART OF THE UNION IN THE DEVELOPMENT OF AFRICA. By G. Heaton Nicholls. *International Affairs*, 1945, 21 (*3*) : 343-353. Sketch map.

AMERICA

FUR PRODUCTION IN THE NORTHWEST TERRITORIES. By M. I. and J. L. Robinson. *Canadian Geographical Journal*, 1946, 32 (*1*) : 34-48. 17 photographs. 3 maps. 12 graphs.

PROGRESS OF SOIL CONSERVATION IN THE UNITED STATES. By Russell Lord. *Geographical Journal*, 1945, 105 (5-6) : 159-169. 8 photographs.

THE NATIONAL PARK SYSTEM IN THE U.S.A. A pamphlet entitled *Information Relating to the National Park System* has been issued by the National Park Service, U.S. Department of the Interior, June 30, 1945 (44 pp.). Names, locations, acreages, outstanding characteristics, and dates of establishment are listed of 169 areas, totalling 21,076,459 acres, and including National Parks, Historical Parks, Monuments, Military Parks, Battlefield Sites, Historic Sites, Memorials, Cemeteries, Parkways, and Capital Parks. Recreational areas administered by the National Park Service, but not part of the National Park System, National Historic Sites not owned by Federal Government, and approved projects are also listed.

IRON IN THE ADIRONDACKS. The extent of the ore reserves in the Adirondack region has not been accurately determined, but the yield of magnetite and titaniferous ores indicates that mining operations will expand and increase in importance. S. A. Anderson and A. Jones (*Economic Geography*, 1945, 21 (*4*) : 276-285. 6 figs.) give a description of the five principal mines, with production statistics.

THE CONSOLIDATED UTE INDIAN RESERVATION. The separate Southern Ute and the Ute Mountain-Allen Canyon reservations, extending from south-eastern Utah to Colorado and New Mexico, were combined in 1918. The boundaries of the reservation were established with a total disregard to the physical relationship of this area. The reservation and its population are described by H. Hoffmeister in *The Geographical Review* (1945, 35 (*4*) : 601-623. 10 figs.). Among the subjects discussed are : landscape, climate, vegetation, land utilisation, the live-stock industry and pastoral nomadism, irrigation farming, vital statistics, and educational, social, and administrative aspects.

THE SMALL MOUNDS OF THE GULF COASTAL PLAIN. Hundreds of thousands of circular, dome-shaped mounds, averaging 30-50 feet in diameter and about 2-3 feet in height, are distributed in irregular belts parallel to the coast line between Corpus Christi, Texas, and Lafayette, Louisiana. R. S. Dietz (*Science*, 1945, 102 (*2658*) : 596-597) suggests that the mounds originated as sandy islets along the margin of lagoonal swamps lined with marsh grass. The latter advances into the shallow lagoon in circular clumps which trap sand and thus construct submerged or partly emerged islets. In shoreline emergence these islets become preserved as mounds which further inland form a so-called pimple-prairie.

THE CAYMAN ISLANDS and the life of the islanders are described by J. H. S. Billmyer (*Geographical Review*, 1946, 36 (*1*) : 29-43. 20 figs.). The Caymanians (about 6500) are principally engaged in seafaring, turtling, and boat-building, and in their character and physique are considered superior to the inhabitants of other islands and countries bordering on the Caribbean.

ROAD BUILDING IN THE AMERICAS. The history of highway construction in Latin America is reviewed by E. W. James in the *Bulletin of the Pan-American Union* (1945, 79 (*11*) : 609-618. 8 figs.). Maps illustrate the present condition of the Pan-American Highway sections between Nuevo Laredo and Panama and in South America.

THE GEOMORPHOLOGY OF AMAZONIA. By Pedro de Moura. *Revista Brasileira de Geografia*, 1943, 5 (*3*) : 323-342. 2 photographs. Mineral map.

THE EXPLOITATION OF AMAZONIA. By Dr. Araújo Lima. *Revista Brasileira de Geografia*, 1943, 5 (*3*) : 371-418. 27 photographs.

CULTURAL AND RELIGIOUS DEVELOPMENT IN NORTHERN BRAZIL. By V. Correia Filho. *Revista Brasileira de Geografia*, 1943, 5 (*3*) : 419-440. 10 photographs. Map, showing Jesuit expansion in the 17th and 18th centuries.

NEW FEDERAL TERRITORIES IN BRAZIL. The boundaries of Amapá, Rio Branco, Guaporé, Ponta Porã, and Igassú are listed in the presidential decree of September 13, 1943, establishing these five new federal territories. The text of the decree is reprinted in *Revista Brasileira de Geografia*, 1943, 5 (*3*) : 509-510.

ARGENTINE–PARAGUAYAN BOUNDARY. In a treaty signed in Buenos Aires on June 1, 1945, the Pilcomayo boundary line between Punto Horqueta and Dalto Palmar was settled. In addition to fixing the political frontier between Paraguay and Argentina, the two governments agreed to channel the course of the river and to regulate its flow by a dam at La Bella Lagoon. This will make available water for irrigation and render the Pilcomayo navigable between the Lagoon and the River Paraguay. (*Bulletin of the Pan American Union*, 1945, 79 (*12*) : 726-727).

OCEANIA

GRAND VALLEY, NETHERLANDS NEW GUINEA. When General MacArthur advanced to Hollandia, the opening of an air route from the southern base at Merauke became imperative. Reconnaissance had revealed possibilities of a landing strip in the secluded valley of the Balim River (in the Oranje Mountains) which had been discovered by the Archbold Expedition of 1938 and named Grand Valley. As Director of Air Transport, in the South-west Pacific, Colonel R. T. Elsmore had an opportunity of visiting this valley which he describes in the *National Geographic Magazine* (1945, 88 (*6*) : 671-694. 22 photographs. Map). Each village in the valley is well laid out, and the tribesmen have evolved an elaborate system of terracing and irrigation. Customs of the Ifitamin and Tanahmerah tribes are also described, and the illustrations are of exceptional interest.

POPULATION POTENTIAL OF THE NORTHERN TERRITORY. In an address to the Northern Territory Development League, the President, Mr. E. J. Connellan, reported on conclusions reached after eight years of work on a development plan. The area to be developed includes the present Northern Territory and the portion of Western Australia north of 20° S., and would require some form of at least partial local government. Mr. Connellan put forward detailed suggestions (*Queensland Geographical Journal*, 1944-1945, 49 : 89-111) concerning transport, land policy, marketing, and distribution of population, and stressed the need for survey and experimental work essential to progress.

POPULATION POLICY IN NEW ZEALAND AND ELSEWHERE : A REVIEW OF OBJECTIVES. By A. H. Tocker. *New Zealand Geographer*, 1945, 1 (*2*) : 139-148.

TORNADOES IN NEW ZEALAND. The distribution of 162 tornadoes and waterspouts recorded since 1919 is shown on a map accompanying a paper by C. J. Seelye in *The New Zealand Journal of Science and Technology* (1945, B 27 (*2*) : 166-174. 5 figs.). The areas most affected are Auckland and Taranaki Provinces and the west coast of the South Island. Annual and diurnal variations and tornado tracks are described, and brief accounts are given of the eight most severe tornadoes and their destructive vigour.

TE PUIA HOT SPRINGS. Hot springs and gas issuing from upper Cretaceous rocks near Waipiro Bay form the subject of a report by E. O. MacPherson (*New Zealand Journal of Science and Technology*, 1945, B 26 (*5*) : 244-254. 4 figs.).

MODERN TONGA. Only thirty-six of the hundred and fifty odd islands of the Kingdom of Tonga are permanently inhabited. Social conditions, agriculture, health, housing, trade, and future progress are outlined (*New Zealand Geographer*, 1945, 1 (*2*) : 99-118. Sketch-map) by C. G. F. Simkin, his article being based on field work as well as on official sources of information. " The Tongans are the only Pacific people to retain real self-government, and they have used it to develop a society which is both reasonably adjusted to the modern world and satisfactorily adapted to their own needs. This means they have solved one of the basic problems confronting colonial policy."

POLAR REGIONS

THE ESKIMOS IN EASTERN GREENLAND. The distribution of former Eskimo settlements on the east coast of Greenland is shown on a map accompanying an article by H. W. Ahlmann (*Ymer*, 1944, 64 (*3*) : 179-188. 4 figs.) in which are discussed the possibilities of existence for Eskimos under present conditions, with special reference to Norwegian and Danish sealing activities. The total population of south-east Greenland in 1938 was 1071, including the 872 inhabitants of Angmagsalik.

THE EXPLORATION OF ANTARCTICA. The history and main features of antarctic exploration between the wars are reviewed in an article in *Ymer* (1944, 64 (*3*) : 189-218. 9 figs. Map) by G. H. Liljequist. " It is hoped that after the end of the war scientific work may be resumed, and that patrons will be found to give material support and to stimulate expeditions to arctic as well as antarctic regions."

CARTOGRAPHY

EQUAL-AREA PROJECTION ON THE ICOSAHEDRON. By A. D. Bradley. *Geographical Review*, 1946, 36 (*1*) : 101-104. 4 figs.

THE MAPPING OF ICELAND. By S. Thorarinsson. *Ymer*, 1945, 65 (*2*) : 115-129. 9 figs.

THE TOPOGRAPHICAL MAP OF SWEDEN, WITH REFERENCE TO ITS DEVELOPMENT TO THE PRESENT. By E. Bratt. *Ymer*, 1944, 64 (*4*) : 270-293. 7 figs.

THE STATUS OF TOPOGRAPHIC MAPPING IN NEW ZEALAND. By K. B. Cumberland. *Geographical Review*, 1946, 36 (*1*) : 135-136.

REVIEWS OF BOOKS

EUROPE

The Nationalities of Europe and the Growth of National Ideologies. By H. Munro Chadwick. Demy 8vo. Pp. viii+209. Linguistic map of Europe. Cambridge : University Press, 1945. *Price* 12*s.* 6*d.*

No brief notice can do justice to this work, which contains enough learning, linguistic, historical, and archaeological, to fill many volumes. The last two chapters, along with the appendix, might well be issued by themselves in booklet form. The principal topics dealt with in the book are the relations between language and the growth of national feeling, the linguistic map of Europe, the sense of kinship among nations, and the historical basis of the claim to domination. The reader's patience and attention are most severely tested by the development of the *pre-historic* argument, and the appeal of the book would probably not have been weakened by the omission of that chapter, which may bring added conviction, but only to those whose previous studies have prepared them for such erudite and detailed discussion.

On every ground save one the author rejects German pretensions to superiority over other peoples. But he points out how much German politicians and German teachers have done to foster in their people those beliefs that have wrought so much evil in our time. He stresses the need to encourage among ourselves the spread of knowledge of foreign peoples, within and without the Empire, not only of their languages, but, and above all, of their history and institutions, for from the gross ignorance of such matters, characteristic of leaders and people in Britain, arise " negligence, lack of foresight, unpreparedness."

The appendix presents a plan for the setting up of an Institute of Imperial and International Studies. The one map is too small for all it has to carry. R. T. C.

The True Facts about the Disputed Frontiers of Europe. By M. Vibart Dixon. Crown 8vo. Pp. 106. 12 sketch-maps. London : Burke Publishing Co. Ltd., n.d. *Price* 2*s.* 6*d.*

Problems of frontier revision were of paramount importance at the end of the first world war ; now, attention is focussed more on economic problems. But nationalism is so strong in Europe that questions of new frontiers are bound to emerge sooner or later. Much friction will be avoided if there is a widespread knowledge of the historical and geographical background of these problems. This book summarises in broad outline the underlying causes of the disputes which have always arisen in certain parts of Europe over frontier questions, and it can be recommended for its impartiality. S. C. F.

National Parks and the Countryside. By Sir Norman Birkett. (The Rede Lecture, 1945.) Crown 8vo. Pp. 36. Cambridge : University Press, 1945. *Price* 1*s.* 6*d.*

In this small booklet Sir Norman Birkett sets forth in eloquent and persuasive language the case for the immediate setting apart of areas in Great Britain suitable for national parks, which he terms " a social need of the highest possible kind." The booklet should be in the hands of all interested in the preservation of our country's beauty and the welfare of its people. " The great need "—says Sir Norman—" is to make a sound national beginning and to make it now by the creation of national parks. . . . If the work of preservation on a national scale is to wait until a complete national policy is fashioned and formulated, until final decisions are made on all the highly controversial questions, it may very well be that some of the most beautiful areas in the land will pass beyond the reach of any salvation." I. W. H.

In Scotland Now : Highland and Lowland Byways. By D. C. Cuthbertson. Demy 8vo. Pp. 172. 37 illustrations. London : Herbert Jenkins Ltd., n.d. *Price* 12*s.* 6*d.*

" The chapters which go to the making of this book are the fruit of many rambles, taken at all seasons and in all the vagaries of a northern climate. Tramping drove roads and Lowland paths, wandering alone in quiet places, that to me forms the golden hours of life." To the many readers who share the author's love of the quiet paths (but are not averse to the friendly " lift " in a baker's van on occasion) these pages will give rare pleasure. Mr. Cuthbertson takes his readers to many out-of-the-way corners of Scotland, from the Borders to Shetland, in leisurely and delightful fashion, unfolding forgotten tales of bygone days as he passes on his tranquil way. He writes with a friendly simplicity which disarms criticism, taking his reader—as it were—into his confidence in engaging fashion. A number of excellent photographs taken by the author illustrate this book, which should prove of interest not only to Scottish readers, but to many outside Scotland, for it forms a very happy introduction to Scottish life and scenery. I. W. H.

Crofting Agriculture: Its Practice in the West Highlands and Islands. By F. Fraser Darling, D.Sc., Ph.D., N.D.A., N.D.D., F.R.S.E. Crown 8vo. Pp. xi+163. 20 illustrations by Robert M. Adam. Edinburgh and London: Oliver and Boyd Ltd., 1945. *Price* 6*s.*

Dr. Fraser Darling addresses this book to his fellow crofters in a simple and direct manner. It is at the same time one of the most practical text-books written on the particular problems and difficulties which face the West Highland and Island crofter. He treats of every aspect of crofting, and each section is remarkable by the sound practices he advocates for raising production and increasing the well-being of the croft. On reading this book, one shares with the author the feeling that, if approached aright and in the proper scientific spirit, crofting life can succeed and has a future.

The contents may not be directly relevant to geography, but the magnificent photographs by Mr. Adam are pre-eminently so, and the book on that account alone deserves to be included in every geographical library. S. A.

Scenes and Sails on the Firth of Clyde. By Ian G. Gilchrist, A.R.P.S. Crown 4to. Pp. 63. 51 photographs. End-paper sketch-map. Rhu: Windward Publications Ltd., 1945. *Price* 7*s.* 6*d.*

Mr. Gilchrist's admirable camera studies of the Gareloch, Holy Loch, Loch Long, Loch Goil, down Firth, and of Loch Fyne are accompanied by a pleasant commentary. The photographs are well chosen and tend to suggest colour values which become enhanced by the atmosphere recorded in memories of each scene. The panorama from Strone Hill, with Ailsa Craig in the background some fifty miles away, is but one of the many happy views. *Scenes and Sails* will delight all who know the Clyde, and also charm the unfortunates who have never been "doon the watter." J. H. K.

The National Trust: A Record of Fifty Years' Achievement. With an Introduction by G. M. Trevelyan, O.M., and Contributions by Ivor Brown, Harry Batsford, Grahame Clark, John H. Harvey, G. M. Young, James Lees-Milne, Basil Oliver, John Summerson, John Russell, D. M. Matheson, Sir William Beach Thomas. Edited by James Lees-Milne. Demy 8vo. Pp. xii+132. 113 illustrations. London: B. T. Batsford Ltd., 1945. *Price* 12*s.* 6*d.*

This is a beautiful book and so full of interesting topographical, historical, and archaeological lore that it is a desperate matter to deal justly with it in a few lines. It is first of all a description of the remarkable work accomplished with limited resources in England and Wales by the National Trust, a work whose variety and extent have probably exceeded even the dreams of the three enterprising persons who founded the Trust fifty years ago: Miss Octavia Hill, Sir Robert Hunter, and Canon Rawnsley. The introduction is by G. M. Trevelyan, a benefactor of some standing.

There is a complete index of names, showing in black type the actual properties owned by the Trust, similar information being supplied by the end-paper maps. The greater part of the text consists of some ten or eleven essays by experts on rural England, Wales, and the Isle of Man, on hill and coast, on town and country houses, on ancient sites and shrines. The numerous illustrations are a delight to the eye.

The work of the Trust has involved the creation of a new type of estate management, for it is emphasised that its purpose is to "preserve from destruction or disfigurement parks, woodlands and valleys heads," but by no means to turn the land into a museum of beauty spots: while the country should become a source of upbuilding to the mass of town-dwellers, it is realised that it must continue to be the workshop of the farmer. The Trust acquires property by gift, bequest or purchase, and has a practical scheme for assuring protection to valuable land and houses by covenant with owners who prefer to retain possession and enjoyment of their estates. The Trust renders a good account of its stewardship, and the book is also an appeal for increased public support. R. T. C.

Severn, Wye and Forest of Dean. By A. Dorothy Holmes. Foreword by Col. C. J. Vereker. Crown 4to. Pp. 100. Illustrations by the author. End-paper sketch-map. Shrewsbury: Wilding and Son Ltd., 1945. *Price* 15*s.*

In her latest publication, Mrs. Holmes takes us on tour through the interesting Forest of Dean area, between the Severn and Wye. It is a part of England comparatively unvisited by the casual tripper (for whom Mrs. Holmes does not cater). Her book will form an excellent reference for those who wish to explore at leisure its beautiful old-world villages with their ancient churches and manor-houses, some of which date from Elizabethan times. The book is profusely illustrated by the author's illuminating black and white sketches. There are a considerable number of small misprints and discrepancies in spelling: peninsular for peninsula and Faxley for Flaxley (p. 27), to name only two. On the end-paper maps, Newnam and Abinghall should read Newnham and Abenhall. I. W. H.

Le village et le paysan de France. By ALBERT DAUZAT. Demy 8vo. Pp. 219. 16 plates. 6 figs. Paris: Librairie Galimard, 1942. *Price* 55 *fr.*

Albert Dauzat, in pursuing his study of French dialects and place-names, has become interested in all things related to rural France. He has travelled the length and breadth of France, and he has observed and noted the similarities and differences between one village and the next, between the peasants of one region and of that adjacent. What has emerged is one of the most satisfying and complete studies of rural France.

The chapters most valuable to the human geographer are those on rural house types, the agrarian system and land tenure of the different regions and the evolution and distribution of agricultural implements. The folklorist and anthropologist will find much of interest in the costumes, traditions, and dialects of the *pays*. The author's most original contribution is the analysis of the house types and distribution of dialects. With the aid of a map, he discusses the evolution of the Gallic, Latin, Basque, Germanic, and other types. Like Griffiths Taylor, he propounds the theory of ethnic "waves."

He concludes the book by an estimate of the value of the peasant to the life of France and the loss she must sustain by the increasing rural depopulation. Throughout the book, the author interprets the present by constant reference to the past. Nor does he forget the future, for to him the preservation of all that is fine in France's peasantry is dear and should at all costs be preserved. That all should be conscious of their heritage is the *raison d'être* of his book. S. A.

Hungary. British Survey Handbooks, No. 4. Fcap. 8vo. Pp. vi+88. Map. Cambridge: University Press, 1945. *Price* 3*s.*

This short survey touches upon many aspects of Hungary, its people and their life. It shows that Hungary constitutes a link between western and eastern Europe. The marked cultural differences between regions to the east and to the west of the Danube are explained, but it is shown that there are certain common factors which overpass divergencies. Agrarian reform has long been overdue. Another urgent need is recruits for the professions and for business, careers hitherto despised by Magyars. Destruction and devastation wrought by the recent war are handicapping the new Hungarian democracy. S. A.

ASIA

A Short History of India. By H. H. MORELAND, C.S.I., C.I.E., and ATUL CHANDRA CHATTERJEE, G.C.I.E., K.C.S.I. 8vo. Pp. xiv+548. 10 maps. London: Longmans, Green and Co. Ltd., 2nd edition, 1944. *Price* 21*s.*

This standard co-operative work has been revised by Sir Atul Chatterjee owing to the death of his collaborator since the first edition appeared in 1936. His six new chapters furnish "a fuller and, it is hoped, objective account of the developments between 1919 and 1943." While Sir Atul's career has given him a thorough knowledge of the constitutional issues, his official position has led to over-reticence. He refrains even from quoting some of the more informed and independent opinions upon Government policy. Of such was that of a fellow-historian, Berriedale Keith, who (in 1940) expressed the view that the mistake made in Ireland in 1914 was being repeated in India, viz., the denial of promised responsible government to a majority because of the intransigeance of a political minority.

In earlier chapters, points of recent research have been incorporated, contributory to "the main theme, the evolution of Indian culture and its response to foreign contacts." Chapters of historic action alternate with assessments of their fruits in India's civilisation. The Indian people—peasants and craftsmen, preachers and priests—emerge with increasing clearness, as Aryans overbear the Indus cities, as Brahman succeeds Buddhist, as pagan Mongol and Muhammedan ride upon the scene, succeeded by the French and British. The alternate difficulties of famine after crop failure, or "harvest glut" after good harvests, are shown to have beset the peasants on whom the main burden of Indian taxation falls—difficulties only partially modified since world trade offered a more supple market than of old. When British rule is dealt with, the perspective is Indian, as it should be, and the conclusions are remarkably true. In an early chapter, the authors apologise for the caution with which they have to weigh incomplete or partial evidence, but their self-discipline stands them in good stead to the end. A. G.

Mountain Magic. By EVE ORME. Crown 8vo. Pp. 80. 34 illustrations. End-paper map. London: Rich and Cowan, n.d. [1945]. *Price* 10*s.* 6*d.*

This book was written as an escape from the enforced statism of war, and is about a trip into Ladakh made nearly twenty years ago. It describes with clear detail the reactions, both mental and physical, of a member of Calcutta society (1926) while undergoing the successive joys and rigours of mountain travel entailing ascents to 20,000 feet, incidents of the road with the Ladakhis, and high lights of her husband's *shikar*. It is very readable, but it is not a scientific record in any sense. R. E. C.

The Soils of Equatorial Regions, with Special Reference to the Netherlands East Indies. By Professor Dr. E. C. Jul. Mohr. Translated from the Nederlandsch by Robert L. Pendleton. 4to. Pp. xii+766. 257 figs. Lithoprinted. Ann Arbor, Mich.: J. W. Edwards, 1944. *Price* $7.50.

Following upon the broad generalisation, principally by the Russian school of soil investigators some 30 or 40 years ago, on the influence of climate on soil formation, there has been an intensive study of soil types in the northern latitudes. The result has been that a fairly comprehensive classification and mapping of soils has been carried out in Europe and North America and a good picture has been obtained of the main types which have developed under temperate conditions. It is natural that fewer observations should have come from the tropics, for the areas are less readily accessible and the investigators relatively few in number. This volume, containing a vast amount of analytical data and personal observation on equatorial soils, is therefore of the greatest value in filling some of the large gaps in our knowledge of the world soil groups.

Part One first deals with the parent materials and the various factors concerned in their weathering and soil formation, and then describes the more common soils derived from basic and acidic materials, from sedimentary rocks and from water and air deposits. Part Two, which constitutes about two-thirds of the work, deals in turn with the islands stretching from Sumatra to New Guinea and lying mainly between the equator and 10° South. In each case, the rocks, climate, weathering processes, and soils are dealt with, and this is followed by an evaluation of the soils and their utilisation.

The text includes 257 figures, mainly photographs, and there are author, subject and geographic indices. A. M. S.

Beyond the Burma Road. By Alan Houghton Brodrick. Pp. 112. 16 illustrations. Map. London: Hutchinson and Co. (Publishers) Ltd., 1945. *Price* 16*s.*

This book, which was intended as a guide to the Far Eastern war, has been somewhat outdated by the sudden ending of that campaign. It contains a racy description of the lands of the Indo-China peninsula, Burma, Siam, Cambodia, and Annam, with an account of the peoples and their history. The author discusses the political and economic aspect of the area and suggests lines of policy to be followed. His views on the future of Western influence in the East are topical and worthy of consideration. J. A.

China—Tibet—Assam: A Journey, 1911. By Lt.-Col. F. M. Bailey, C.I.E. 8×5½ inches. Pp. 175. 10 illustrations. London: Jonathan Cape Ltd., 1945. *Price* 10*s.* 6*d.*

Colonel Bailey's name has long been associated with Tibet and Assam. He has taken a large share in pioneer work in these lands, and more especially in exploring their river systems. In his early days he had, in company with others, investigated very thoroughly the source and course of the Tsangpo which drained the northern slopes of the Himalayas, but its ultimate course remained an unsolved problem largely due to the fact that it led through country where the tribes were unfriendly. A certain amount of knowledge had been obtained through native agents, and it was known that the river lost itself in a range of mountains 9,000-10,000 feet high to emerge again in the Assam plain 120 miles distant at an altitude of only 500 feet.

As approach from the west was impossible, Colonel Bailey set out to solve it from the east, and his book gives an account of that journey via the Yangtze into Assam, crossing the Mekong and Salween rivers and thence to Shugden Gompa. Here he was within reach of his goal, for the river there was a tributary of the Tsangpo and he would by descending it make contact with the main stream by the falls. Unfortunately the country through which he would have to pass was disturbed by war with the Chinese, and he was forced reluctantly to retrace his steps southwards, eventually going through the Mishmi Hills to Sidiya and thence to Calcutta. Nevertheless he has by his surveys added much to geographical knowledge, and has also given much information of the peoples. The author, a keen naturalist, has made us better acquainted with the distribution of animal and plant life of the country, many of the species being new and now bearing his name. His *Meconopsis* graces and gladdens our home gardens. The journey was not without its difficulties and hardships, yet his nostalgia to return to former scenes is understandable. J. R.

Plant-Hunting in China: A History of Botanical Exploration in China and the Tibetan Marches. By E. H. M. Cox. Demy 8vo. Pp. 230. Coloured frontispiece. 24 plates. 3 sketch-maps. London: William Collins, Sons and Co. Ltd., 1945. *Price* 12*s.* 6*d.*

Plant hunters have given inspiration to all the arts and sciences, and geographers have shown the highest appreciation of their work. A book setting out "the history of plant collecting in China in some sort of sequence" should be welcome. The history goes back about three hundred years, and told within the compass of this book means compression. Nevertheless, with an adequate map and references the reader could follow the sequence, appraise its items, and assess the area for future possibilities. The material given, particularly

the extracts from the hunters' writings, is good and creates an urge to learn a great deal more. But there is no map of China in the book, and the three maps of the fields of plant hunters Wilson, Forrest, and Farrer show the rivers and towns but no mountains or the hunters' routes, and have no scale nor lines of latitude and longitude.

The excellent full-page photographs depict an interesting range of country and are a great credit to the hunters who took them. Their relation to the text would assist the reader, for they are factual, and this book is a " compilation of facts " presumably related. The facts are interposed with a " certain amount of explanation and a little criticism." The author handicaps himself to the reader's disadvantage when he explains that he has " departed from the usual in the spelling of Chinese names " and states that " I have not given my references." Some of the latter are mentioned by title, but one, Bretschneider's *European Botanical Discoveries in China*, " to which this book owes much," is considered " rather an inhuman book, the product of a purely scientific brain." The " average gardeners " for whom this book is written, and anyone else whose appetite may be whetted by the tit-bits given for more of the conditions under which the hunters lived, worked, and saw their plants (and birds, and rocks, and people), must be content with *hors d'œuvres*. Selecting is difficult ; but the implications of George Forrest's original report of giant lobelias as an item of a flora peculiar to volcanic-affected areas, by Tenqueh (1916-17), to be compared with a similar expression of the flora of the Central African mountains, would seem to be of sufficient importance to warrant its inclusion.

This book was almost wholly planned and written before 1939 and produced in 1945, but proof reading has overlooked *Anthemi* (p. 62), the linking with a hyphen of a generic and specific name (p. 95), and *Rhododendron recemosum* (p. 165). All may not share the author's opinion of the finish of an era in gardening (p. 222), and many will be surprised that the technique of gardeners in the first half of the nineteenth century was " only suited to plants from the tropics and subtropics " (p. 15).

The coloured frontispiece of *Primula sinensis*, originally painted by a Chinese artist in China for John Reeves, one of the plant hunters, shows the high standard to which the latter could inspire their native helpers (and still do)—a co-operation in which all the civilised nations have played a part, the Scots as big as any ; a story fit for treatment by a Bretschneider and a Farrer combined, and on as fine a scale. R. E. C.

China Cycle. By RICHARD P. DOBSON. Demy 8vo. Pp. vi+217. 11 photographs. End-paper maps. London : Macmillan and Co. Ltd., 1946. *Price* 12*s*. 6*d*.

The author, at the age of 22, went to China in 1936 as a junior assistant on the staff of a large tobacco company. In the course of his duty he travelled through most of the provinces in the southern half of China, inspecting the company's agencies in the principal cities. He also made holiday trips in North China and Japan.

It is refreshing to come across a book on China in which the author deals with what he actually saw and did himself, with the minimum of politics, dry statistics, and blue-prints for putting everything right. The book gives an account of how business was conducted in interior cities, with the then customary festivities. Not the least interesting part describes how, when the Japanese closed the usual rail and river routes, traffic continued by secondary routes over mountains and through rivers, very rough going and primitive accommodation. The people and resources of various provinces and cities, including Shanghai, are commented on, and certain aspects of the war, including conditions at Changsha, are dealt with, thus forming an instructive record of the author's experiences in China from 1936 to 1943. A commendable feature of the book is good, clear print, easy to read. W. O. L.

The Challenge of Red China. By GUNTHER STEIN. Demy 8vo. Pp. iii+388. 23 illustrations. End-paper maps. London : Pilot Press Ltd., 1945. *Price* 15*s*.

However widely opinions may differ regarding Communism, there are no doubts in Mr. Stein's mind regarding the quality of the Communism that he found in China. It is known as the New Democracy. A few quotations from the book may serve to show the thought and purpose behind the movement : " Self-government—in a primitive form—has begun to work for the first time in part of the country. . . . Democracy and unity—with the aim of getting all classes to co-operate in every respect—these are our only secrets." The author declares that the Communists are strong nationalists. They are intensely interested in raising the standard of living of the masses and in understanding their needs, and to this they attribute much of their success. Mao Tse-Tung, the leader, thus summarises what China needs to-day: " China needs internal peace and democracy." Mao is a broad-minded man and recognises the usefulness of much that has been handed down by Chinese history, as well as what is good in foreign cultures. He upholds co-operation between the Kuomintang and the Communist parties, so that China may be strong.

Mr. Stein spent five months among the Communists, and his book is full of material regarding them, their way of living and their beliefs. It is impossible to condense into a few lines the wealth of knowledge gained through enquiry and observation ; but to those interested in China's future, perusal of this book will bring many new lights on this ever-growing movement in China. A. C.

Chinese Science. By Dr. Joseph Needham, F.R.S. Demy 8vo. Pp. 80. 95 illustrations. London : Pilot Press Ltd., 1945. *Price* 7*s.* 6*d.*

The author gives what might be called a bird's-eye view of what is being done in China by China's sons and daughters in the cause of science in all its aspects. The book is largely pictorial.

China has been awakening throughout the last two decades, but it has taken a war to "stab her broad awake." To those who knew China in the old days, it is refreshing to see the pictures of present-day students of both sexes with their keen and interested faces. During the war years, the road to knowledge has been encompassed by dangers and difficulties—difficulties which brought into action the native ingenuity of the Chinese.

This little book is well worth reading, and is most enlightening on the subject of the great forward movement in China. Dr. Needham says: "Chinese Science will develop into a force of major significance not only for China, but for the whole world." A. C.

Ten Years in Japan. A Contemporary Record drawn from the Diaries and Private and Official Papers of Joseph C. Grew, United States Ambassador to Japan, 1932-42. Foreword by Sir Robert L. Craigie, G.C.M.G., C.B., His Majesty's late Ambassador to Tokyo, 1937-1941. Demy 8vo. Pp. 480. 24 illustrations. London : Hammond, Hammond and Co. Ltd., 1944. *Price* 15*s.*

To many people in the West, Japan has been an enigma, and it has been difficult to assess the qualities of the Japanese people. This book is most illuminating, portraying as it does much of the life of the people. According to the author, Japan is a land of paradoxes and of extremes of great wisdom and great stupidity. Many of the older generation were fine people, and did what they could—often at great risk to themselves—to avert war ; but the younger generation were in the saddle, and the military machine was cruel, brutal and ruthless. This machine had been in training for many years and China proved to be a "practical training ground for the Japanese soldiers and sailors who tirelessly developed and perfected the tactics which they subsequently used in their landings and conquests in the south." Mr. Grew says that Manchuria was the bone of contention, and the Japanese people had been persistently told that it was the life-line of Japan. Manchuria was a necessity to Japan and nothing was allowed to stand in the way of securing it.

The book is packed full of interesting material—not only jottings in a diary—and readers will be amply rewarded by obtaining from its pages a clear and correct conception of the war in the Far East and the events that led up to it. A. C.

Behind the Japanese Mask. By the Rt. Hon. Sir Robert Craigie, G.C.M.G., C.B. Med. 8vo. Pp. 174. 28 illustrations. London : Hutchinson and Co. (Publishers) Ltd., 1946. *Price* 21*s.*

Sir Robert Craigie was our Ambassador in Japan during the fateful years 1937 to 1942. He has given us an important book recording the swaying of public opinion in Japan between the comparatively liberal elements and the military extremists, in the periods before the final war, with examples of events that turned the tide from time to time, ending with the great German victories in Europe providing the militarists with their apparent opportunity, for which all was ready.

Apart from its general interest this record should be studied by all who wish to understand the Japanese situation, and to take such action now as will put them on the right road for carrying on in a reasonable manner after the allied forces leave. It also conveys a warning for us all not to be easygoing with extremists lest they lead us to ruin as they did Japan.

Concurrent events in China and Indo-China, which were dealt with in Tokyo, are included, and there are many interesting observations on things Japanese. The illustrations are from photographs, mostly of prominent personages mentioned in the narrative.

W. O. L.

AMERICA

Canada and the World To-morrow. Edited by Violet Anderson. Crown 8vo. Pp. xi+159. Toronto : The Ryerson Press, 1944. *Price* $1.25 or 6*s.* 6*d.*

This is a symposium of addresses given to a conference held in 1944 under the auspices of the Canadian Institute of Public Affairs.

The British reader naturally turns first to Part I dealing with International Affairs, in which there are valuable contributions on such problems as "Great Britain's Post-war Position," "Canada and the British Commonwealth" and "The Bretton Woods Proposals," but Part II, on Canadian Affairs, is also of interest in showing how Canadians are facing up to some of the economic problems which are exercising our own minds. But the discussions on the future status of French Canadians within a preponderatingly British Dominion touch on a social problem of much more than national importance. S. C. F.

The Great Lakes. By HARLAN HATCHER. Demy 8vo. Pp. xi+384. 17 photographs. 4 maps. New York, Toronto, and London : Oxford University Press, 1944 ; Third Printing, 1945. *Price* $3.50 or 16*s.*

To those who live on the shores or navigate the waters of the Great Lakes, to visitors, to traders and engineers, to historians and politicians, to geographers, geologists, and naturalists, this vast expanse of fresh water presents a multitude of facets. The author has succeeded in presenting the protean story of the Great Lakes in one volume and in a manner which will fascinate the general reader.

The thirty-seven chapters of the book group themselves into four parts which deal, respectively, with the birth and discovery of the Great Lakes, the conflicts for their possession, subsequent development, and recent progress. It is not merely an account of the interaction of environment and man, but a story of the activities of individual men who left their imprint on the region, a story that ends with shipbuilding and shipping during the second world war, and an almost Whitmanesque review of the cities on the shore-line.

It is a commendable volume, though more and better maps would seem desirable. Few books deal with the Lakes as a unit, but the literature on specific aspects is voluminous, so that the list provided of the more significant literary sources of *The Great Lakes* will be welcome to readers who are avid for even more information than is so liberally supplied.

J. H. K.

Snowshoe Country. By FLORENCE PAGE JAQUES. Crown 4to. Pp. 110. Illustrations by Francis Lee Jaques. Minneapolis : The University of Minnesota Press, 1944 (reprinted 1945). *Price* $3.00. London : Oxford University Press. *Price* 18*s.* 6*d.*

In this beautifully produced book, illustrated by her husband, the author describes in eloquent language a winter passed " as a release from the tenseness of present-day life " in the forest-country of northern Minnesota close to the Canadian border. Though Mrs. Jaques' love of nature is not so profound or imaginative as Grey Owl's (she does not scruple, for example, to learn how to use and set the cruel steel trap) she gives many beautiful and arresting word-pictures of forest and lake under snow, and of life in the homes of the hunters and " hosts " who open their hospitable dwellings to city guests, and she fulfils admirably her simple aim : " to give a picture of what anyone might find, through the winter, in the border country of Minnesota and Canada." But the book is not so valuable for its word-pictures of the wilderness—charming as many of these are—as for Mr. Jaques' exquisite black and white drawings of wild life, birds, trees, and forest-country. He is a true artist, and in his delicate but powerful sketches has caught to perfection the grace and majesty of the North American terrain in winter.

I. W. H.

OCEANIA

Fortress Islands of the Pacific. By WILLIAM HERBERT HOBBS. 9×6¼ inches. Pp. xiii+186. 83 maps and diagrams. 24 pen drawings by W. B. Shaw. Ann Arbor : J. W. Edwards, 1945. *Price* $2.50.

This publication cannot claim to present a balanced description of the Pacific Islands. Considerable attention has been given to the Micronesian and American islands elsewhere, but the remainder are either dealt with very briefly or omitted. Unfortunately the reviewer knows only Tutuila and just those islands which Professor Hobbs appears not to have visited. The Japanese islands were closed to all foreigners shortly after the author's visits, and he gives much useful information not obtainable from other sources. His descriptions of the smaller American possessions (the Line Islands, etc.) are also valuable.

He is interested mainly in physical features and geological history ; his theories are not universally accepted. Synchronisation of raised reefs (raised atolls) with phosphate islands leaves no place for Niue (the largest of them all) or many others. Inclusion of Rarotonga among the Group Volcano Islands is incomprehensible. Incidentally, the peak is 2900, not 2100, feet high, and the reviewer cannot agree with the remark about the safety of this open anchorage.

Nothing in the book would suggest that whereas Tutuila has an area of only 40 square miles, British Samoa comprises 1240. Three pages are devoted to the American island, but only a passing reference is made to Savaii, whilst Upolu (the most important island of the group) is neither mentioned in the text nor appears in any map. The statement that " the climate of Tutuila is salubrious " is irreconcilable either with a 190-inch rainfall or the following dry-season entry in the reviewer's diary : " . . . on those occasions when it is not raining torrents, the air is steaming hot. A more enervating climate I can hardly imagine, and it is probably the worst in the Islands."

There is a sketch-map showing the location of naval and air bases, but geographers would prefer a map of the Pacific, especially if all the islands mentioned in the text were indicated.

C. R. V. G.

Bride in the Solomons. By Osa Johnson. Crown 8vo. Pp. 224. 64 photographs. London: George G. Harrap and Co. Ltd., 1945. *Price* 12*s.* 6*d.*

Mrs. Johnson has written a most fascinating book on the Solomon Islands, with two final chapters on Vao and Malekula (New Hebrides). She and her husband set out in the early 1920's to secure cinematograph and still photographs of cannibals, including if possible a cannibal feast. Fantastic though the last part of the project sounds, they were successful.

The author is a keen and accurate observer and, among other things, brings out the diversity of peoples inhabiting the British Solomons. Her descriptive powers are such that every page of her book holds the attention and imagination of the reader, who is left wondering why she has not written of this expedition earlier.

Bride in the Solomons is generously illustrated with excellent photographs. A Bêche-de-Mer glossary is provided at the end of the volume, and reference to this makes the dialogue easy to follow. C. R. V. G.

Backwash of Empire. By M. Kathleen Woodburn. Demy 8vo. Pp. 223. 52 photographs. 3 maps. Melbourne: Georgian House, 1944. *Price* 10*s.* 6*d.*

This is an account of a trip around the New Hebrides and of a stay on a sheep station in Erromanga between two calls of the regular Sydney steamer. Interspersed with the personal narrative are the generally recognised facts about the unhappy British–French Condominium and information about the native customs, flora and fauna of Erromanga. C. R. V. G.

OCEANOGRAPHY

Oceanography for Meteorologists. By H. U. Sverdrup. Demy 8vo. Pp. xv+246. 70 figs. 4 charts. London: George Allen and Unwin Ltd., 1945. *Price* 12*s.* 6*d.*

Here, as the foreword on its jacket cover indicates, is the first adequate volume to appear with co-ordinated oceanographical information which is useful—indeed, one might say, in some respects, necessary—to the meteorologist, if for no other reason than that ocean and atmosphere, considered scientifically, are both fluid media whose characteristics must therefore be to some extent analogous. By solar radiation, winds, evaporation and precipitation, ice formation and melting, however, there is, in fact, constant and large-scale interplay between these two media which have, moreover, a common interface over nearly three-quarters of the earth's surface. Furthermore, on the basis of fundamental physical principles, it is clear that the influence of the sea on the atmosphere must considerably outweigh reverse tendencies. In short, oceanography, in important and far-reaching respects, is fundamental to meteorology.

Hence the significance to the meteorologist of a knowledge of oceanographical theories, facts and methods, as presented by one of their foremost living exponents in this well-illustrated book; knowledge of surface and sub-surface physical phenomena, of temperature and salinity conditions, and of water-movements and currents which largely control these conditions.

In addition to text illustrations, there are four folding charts of world ocean surface temperatures in February and August respectively, of surface salinity distribution in the northern summer, and of February–March surface current conditions. There are also Subject and Name Indices, and in the beginning of the book is given a short list of oceanographical and meteorological literature, most of the citations in which contain extensive bibliographies. J. B. T.

Raw Materials from the Sea. By E. Frankland Armstrong, D.Sc., F.R.S., and L. Mackenzie Miall, B.A. Demy 8vo. Pp. xi+164. 21 plates. Leicester: Constructive Publications Ltd., n.d. *Price* 15*s.*

The sea almost certainly contains in solution, mostly in minute concentration, all the 92 elementary substances now known to the chemist. Up to the present only three of these, namely, bromine, magnesium, and sodium, have been successfully extracted from the sea on a commercial scale, with every likelihood, however, that a fourth, potassium, will similarly qualify for commercial honours very soon. Except perhaps in the case of sodium, formidable difficulties, chemical and engineering, have had to be overcome in the manufacturing processes, and the development of these industries in some places owes much also to the pressure and stimulus of war.

Here is a stimulating and indeed significant book which, among other interesting facts, tells how these difficulties were surmounted and how bromine, for anti-knock "ethyl" petrol, magnesium, in increasingly great demand for the aircraft industry, and potassium, of which the late Dr. Armstrong, one of the joint-authors of the volume under review, gave forewarning not long ago of serious dearth in our agricultural lands, are now economically procurable from the sea. These achievements also, as the authors indicate, point the way to further enterprises of like nature for the future. J. B. T.

CLIMATOLOGY

Methods in Climatology. By VICTOR CONRAD. Med. 8vo. Pp. xx+228. 46 figs. 48 tables. Cambridge, Massachusetts: Harvard University Press; London: Oxford University Press, 1944. *Price* $4.00 or 22*s*. 6*d*.

Dr. Conrad, of Harvard, was for many years Professor of Meteorology at Vienna; and the content and treatment of this admirably produced book largely reflect his experience at that university, the birth-place of many renowned climatological studies. While he admits the indebtedness of climatology to the geographers, his view is that specifically climatological methods of analysis of data are not so much used, and this book may be commended to advanced students of geography as well as to long-distance forecasters and others who require a useful introduction to the simpler methods of statistical interpretation, correlation, and the theory of probability.

Undoubtedly the author covers a wide and (in English especially) somewhat original field. It is indeed welcome to have such a scholarly introduction, well indexed, and splendidly documented with references from the periodicals of many countries, covering such things as the pitfalls in cartographical representation of an element such as snow-cover, or the errors which arise when mid-temperatures derived from daily extremes without correction are compared with true means. Too many geographers contemplate their tables of climatic data in an inadequately critical spirit, if they do not actually avoid them; here is a salutary corrective discipline. G. M.

GENERAL

Star Compass: Longitude Finder, Star Clock and Planisphere. (Model for Latitude Band 50°-55° N.) By FRANCIS CHICHESTER. 6×5 inches. Pp. 43. Chichester Star Compass in pocket. London: George Allen and Unwin Ltd., 1945. *Price* 5*s*. 6*d*.

This little book provides detailed working instructions for the star compass contained in the pocket of the book. The instrument is designed for use within the latitude belt from 50° to 55° North and can, of course, be used in any longitude. The compass consists of a cardboard disc mounted on a base so that the disc can rotate about its centre which represents the observer's zenith. The principal navigational stars are printed on the disc while, on its circumference, there is a scale showing the months and dates. A transparent cover over the disc shows the observer's horizon and is printed with a graticule indicating the true bearings or vertical circles every 10° together with a time scale on the circumference.

The instrument may be used for the ready solution of a variety of problems, such as finding the true bearing of a star on a given date, if the local time is known, to enable a course to be set or to check the accuracy of a magnetic compass, provided the magnetic variation is available. It may also be used to find the local mean time, provided the star's actual bearing is known together with the observer's longitude, and conversely, to compute the longitude when G.M.T. is known. The author claims an accuracy within 1° of the true bearing or 4 minutes of time, if the compass is used with due care. It may also be used as a planisphere by means of which the various northern constellations may be located at night.

The printed instructions explain the principle and method of working in a simple and lucid manner, and the instruments should be of interest and value to anyone who wishes to use the stars as a means of finding direction on land, at sea or in the air. A useful addition, which would enhance the value of this publication for observers in this country, would be a small chart of the British Isles from which the observer's longitude and the magnetic variation might be obtained. W. A. F.

Mountain Photography—Its Art and Technique in Britain and Abroad. By C. DOUGLAS MILNER. 9½×7 inches. Pp. 238. Illustrated. London and New York: The Focal Press Ltd., 1945. *Price* 19*s*. 6*d*.

This book is worth buying for the illustrations alone. Many of them are magnificent. In the text Mr. Milner shows a thorough grasp of his subject and deals fully with all aspects of mountain photography including coloured photography and photo-topography. After they have read the book many amateurs will feel that they did not realise the extent of their ignorance, but they will find the book most profitable. A. H.

And the Cock Crew. By FIONN MACCOLLA. Demy 8vo. Pp. 141. Glasgow: William Maclellan, 1945. *Price* 7*s*. 6*d*.

This novel deals with the Highland Clearances of the eighteenth and nineteenth centuries, its author's aim being "to work down to the root causes and motives underlying these extraordinary events, down to their source in the depths of that spirit of man whose movements are personal destiny and the history of nations." The author's presentation of the Clearances is, however, a partial one. There are some beautiful word pictures of Highland scenery described with all the power and poetry of the Gael. I. W. H.

Amerigo Vespucci, Pilot Major. By FREDERICK J. POHL. 9×6 inches. Pp. xiii+249. 17 illustrations. New York: Columbia University Press; London: Oxford University Press, 1944; Second Printing, 1945. *Price* $3.00 or 20*s.*

Daylight on the man whose name America bears is welcome. Mr. Pohl's limelight makes one blink. He, following Magnaghi, jettisons the 1497 voyage in which Vespucci was supposed to reach the American mainland before John Cabot and Columbus, pronouncing the letter to Soderini in which that claim was made a forgery by certain busybodies. But for that forgery, America had surely borne another name. Yet the author, holding himself guiltless of throwing away the baby with the bath water, persists in calling Amerigo the discoverer of America, on the ground, firstly, that he first realised that it was a new continent. First realisation of what was implicit in the discoveries of Columbus and others would not make Amerigo the discoverer even if proved, as it is not. The other ground is that Amerigo first explored the whole coast of Brazil and even further south. This requires, among much else, that Amerigo commanded and deserves the whole credit for the Spanish voyage of 1499-1500 and the Portuguese one of 1501-1502. His own letters, here translated, are quite inadequate evidence that the monarchs put this Florentine ship chandler over the heads of their own seasoned navigators. The reasonable view is that he went in a subordinate capacity, but kept very much alive to what was happening and studied nautical astronomy to such effect that, by 1508, he could become Piloto Mayor of Spain. Be it noted, however, that in 1507 King Ferdinand, sending caravels to seek for a strait, put Pinzon and Solis in command and kept Amerigo Vespucci on shore to procure stores, "as he is well known to be experienced in such work."

The book abounds in "no doubt"s and "must have been"s. Its main contentions cannot be regarded as established. But it is most readable, pleasantly produced and illustrated, and gives much information about Vespucci and the genesis of the name America.

H. C. M.

Russian Voyages Round the World. By N. NOZIKOV. Edited and with an Introduction by M. A. SERGEYEV. Translated from the Russian by Ernst and Mira Lesser. Demy 8vo. Pp. xx+165. End-paper maps. London: Hutchinson and Co. (Publishers) Ltd., 1945. *Price* 12*s.* 6*d.*

This book contains summaries of the three voyages round the world made at the dawn of the nineteenth century by Krusenstern, Golovnin and Litke. The Russian is not by nature a seafarer. Vitus Bering, who captained the Czar's ships to the discovery of the Aleutians, was a Dane. The first Russian voyage round the world, not accomplished by Krusenstern until the surprisingly late date of 1803-6, was made in vessels purchased in London and led by the Estonian Balt Krusenstern, who was born in Tallinn (Reval) in 1770 and trained for six years with the British Navy (at that time the training-ground for the best Russian officers), where the idea for his great voyage to Russian America was conceived. Golovnin, who accomplished the next Russian circumnavigation of the world in 1807-9, joined the British Navy after training in England, and served for three years with it in all parts of the world under the great captains of history, Nelson, Cornwallis, and Collingwood. Litke was Golovnin's disciple and made his first round-the-world voyage with him in 1817-19.

This book is to be welcomed in so far as it opens up to a wider public the interesting and valuable work done by these famous mariners particularly in the North Pacific, Kurile Islands, and Kamchatka, but it is unfortunate that the Editor, M. A. Sergeyev, has, notably in his introduction, given way to a propensity for a biased propaganda which detracts from the reliability and value of the text. Although admitting the atrocities perpetrated by the Russian traders against the Aleutian islanders (whom they practically exterminated after enslaving them) he makes the surprisingly blatant claim about native rule by "whites," that "it was only the Russian world explorers who manifested a compassionate and humane attitude towards them"! Exception might also be taken to other editorial assertions, such as the claim (on page xi of the introduction) that from 1803-49 (during the very period when the great British arctic voyages of Franklin and others in search of the North-West Passage were taking place) "Russia held the place previously occupied by England and France in long voyages and the scientific investigation of the ocean." It would probably have been better had the Editor left Mr. Nozikov to tell his own very interesting tale of these early voyages in his own words, condensed directly from the already famous narratives of their captains.

One or two minor errors need correction. "Sundra" Strait on both end-paper maps should read "Sunda." On page 118 it is stated that "splendid grasses grow in the forests and low-lying valleys of the Aleutians." There are no trees whatever—let alone "forests"—in the eleven-hundred-mile stretch of the Aleutian chain between Attu and Unimak. On the next page Ililiuk should be spelt Iliuliuk (from the Aleut word said to mean "a curved beach").

I. W. H.

BOOKS RECEIVED

Report on the Phenological Observations in the British Isles from December, 1943, to November, 1944. By Major H. C. GUNTON, M.B.E., F.R.E.S. Med. 8vo. Pp. 31. 3 diagrams. London : Royal Meteorological Society, 1945. *Price 3s.*

Edinburgh as the Artist Sees it. By ALEKSANDER ZYW. Introduction by H. Harvey Wood. 7½×8 inches. Pp. 48. Illustrated. Edinburgh : Macniven and Wallace, 1945. *Price 4s.*

The Place Names of the Parish of Gigha and Cara. Demy 8vo. Pp. 31. Kintyre Antiquarian Society, 1945.

The Reids of Kittochside. By HERBERT REID, M.C., M.A. Crown 4to. Pp. 59. Illustrated. Glasgow : Printed for private circulation, 1943. Part II, Containing Corrigenda et Addenda, with a short Sketch of the Reid-King-Guthrie-Learmonth Families. Pp. 46. Illustrations. Sketch-map. Glasgow : John Smith and Son (Glasgow) Ltd., 1945. *Price 2s. 6d.*

Topical Guide to South-Slesvig Question. By POUL MEYER. 8×5 inches. Pp. 22. Sketch-map. Copenhagen : H. Hagerup, 1945.

The South Slesvig Question. By CLAUS ESKILDSEN. Crown 8vo. Pp. 24. Sketch-map. Copenhagen : H. Hagerup, 1946.

Obra Nova de Língua Geral de Mina de António Da Costa Peixoto. Manuscript in the Public Library of Évora, prepared for publication by LUÍS SILVEIRA. 8×6 inches. Pp. 36. 2 illustrations. Lisbon : Agência Geral das Colónias, 1943.

Survey of India : Civil Activities Report—War Period 1939-45 (up to 31-3-45). Med. 8vo. Pp. 10. Dehra Dūn : Geodetic Branch, Survey of India, 1945.

The Peoples of French Indochina. By OLOV R. T. JANSE. Med. 8vo. Pp. iv+28. 25 plates. 1 map. Smithsonian Institution War Background Studies No. 19. Washington, D.C. : Smithsonian Institution, 1944.

Au bord de l'Océan Ténébreux : Atlantique et Afrique. By Professor THÉODORE MONOD. Med. 8vo. Pp. 15. 23 figs. Saint-Louis : Institut Français d'Afrique Noire, 1944.

Contos do Caramô : Lendas e Fábulas Mandingas da Guiné Portuguesa. By VIRIATO AUGUSTO TADEU. 9×6½ inches. Pp. 147. Portrait. Lisbon : Agência Geral das Colónias, 1945.

Relatório dos Trabalhos Executados. COMISSÃO ADMINISTRATIVA DO FUNDO DO FOMENTO DE ANGOLA. 8½×6 inches. Pp. 55. Map. Lisbon : Agência Geral das Colónias, 1945.

The Harbour of Lobito : Its Life and Activity. By RAIMUNDO SERRAO. 8½×6¼ inches. Pp. 20. 12 photographs. 2 plans. Lisbon : Agência Geral das Colónias, 1945.

Providências legislativas tomadas pelo Ministro das Colónias em Angola e Moçambique, em 1945. 9½×7 inches. Pp. 264. Lisboa : Agência Geral das Colónias, 1945.

Relatório do Governador Geral de Moçambique, General José TRISTÃO DE BETTENCOURT, respeitante ao período de 20 de Março de 1940 a 31 de Dezembro de 1942. 8¾×6½ inches. Vol. I. [Government and Administration]. Pp. 426. Tables. Graphs. 3 maps. Vol. II. [Economic Situation]. Pp. 391. Tables. 32 photographs. Graphs. 1 map. Lisboa : Agência Geral das Colónias, 1945.

Report of the Committee on the Preservation of the Vegetation of the South-Western Cape. By C. L. WICHT. Crown 4to. Pp. 56. Frontispiece. 26 figs. Map. Cape Town : Royal Society of South Africa, 1945. *Price 6s.*

An Outline of the Canadian Eastern Arctic : Its Geography, Peoples and Problems. By J. LEWIS ROBERTSON. 4to. Pp. 38. Map. Bibliography. Mimeographed. Ottawa : Bureau of Northwest Territories and Yukon Affairs, 1944.

The Northwest Territories : Administration, Resources, Development. 4to. Pp. 59. Map. Bibliography. Mimeographed. Ottawa : Bureau of Northwest Territories and Yukon Affairs, 1944.

Atlas of Canada Project : A Preliminary Survey. By BENOIT BROUILLETTE. Demy 8vo. Pp. 77. Ottawa : Canadian Social Science Research Council, 1945.

The Contemporary Culture of the Cáhita Indians. By RALPH L. BEALS. 9×5¾ inches. Pp. 244. 40 photographs. 33 figs. Bibliography. Glossary. Washington, D.C. : Smithsonian Institution, Bureau of American Ethnology, Bulletin 142, 1945. *Price 50 cents.*

Sertões e Fronteiras do Brasil : Notícia da Época Colonial. By AMADEU CUNHA. 9×6½ inches. Pp. 372. 6 illustrations. Map. Lisbon : Agência Geral das Colónias, 1945.

Charte des Nations Unies. Statut de la Cour Internationale de Justice. Accord établissant la Commission Préparatoire des Nations Unies. 7¾×5½ inches. Pp. 47. Ottawa : Commission de l'Information en Temps de Guerre, n.d.

The Making of a Map. Notes on the Exhibition in the Ambulatory, 31 December 1945—5 January 1946. By Brigadier Sir CLINTON LEWIS, O.B.E. Med. 8vo. Pp. 8. London: Royal Geographical Society, 1946. *Price 6d.*

Geodetic Tables applicable to all Spheroids of Reference. By Captain T. L. THOMAS, M.B.E., R.E. Med. 8vo. Pp. 30. Bad Oeynhausen: Survey Directorate, H.Q. British Army of the Rhine, 1945.

ROYAL SCOTTISH GEOGRAPHICAL SOCIETY

PROCEEDINGS

MEETINGS OF COUNCIL were held on December 18th, 1945, and January 22nd and February 26th, 1946.

Obituary.—The Society sustained a grievous loss by the deaths of JAMES WATT, LL.D., F.F.A., W.S., JOHN W. GOURLAY, C.A., and JOHN WATT BUTTERS, M.A., B.Sc.

Dr. Watt was an esteemed Member of Council, of which he was Chairman from 1930 to 1933, and had been a Trustee of the Society since 1922.

Mr. Gourlay promoted the interests of the Society as Secretary of the Glasgow Centre from 1910 to 1941, and as Convener of the Finance Committee of the Society.

Mr. Butters served for three terms on the Council, and for three years was Convener of the Library Committee.

Trustees.—Mr. JOHN BARTHOLOMEW, M.C., M.A., and Mr. DAVID ALAN STEVENSON, M.Inst.C.E., were appointed Trustees.

Map Curator.—On the resignation of Mr. FARQUHAR MACDONALD, at present resident in the south of England, Mr ALEXANDER R. NORMAND, M.A., B.Sc., Ph.D., F.R.S.E., was appointed Map Curator.

Awards.—The Society's Gold Medal was awarded to HERBERT J. FLEURE, D.Sc., M.A., F.R.S., Emeritus Professor of Geography, University of Manchester, for his conspicuous work in geography.

The Honorary Diploma of Fellowship was awarded to Dr. GILBERT GROSVENOR, President of the National Geographic Society, and Editor of the *National Geographic Magazine* since 1901, in recognition of his great work in promoting the increase and diffusion of geographical knowledge.

PRESENTATIONS

Dr. David Livingstone's Flag, carried in some of his travels through Africa, has been given on loan to the Society by his great-grandson, Mr. R. B. Livingstone Bussell. This Red Ensign is now displayed along with Livingstone's manuscript survey made in 1859 of the territory south-west of Lake Nyasa, gifted some years ago by Mr. William Stanford.

Books.—Rev. George Lamb, Melrose, presented *Australia Illustrated* (8 volumes); Miss I. Alexander, Edinburgh, 5 books on Siam; The Executors to the late Dr. Keppie Paterson, 6 books of travel; Dr. Ninian Bruce, Edinburgh, 15 etchings of Old Edinburgh; Mrs. C. Nisbet, Humbie, East Lothian, Knox's Map of Midlothian (1812), Sharp, Greenwood and Fowler's County of Edinburgh (1828), Arrowsmith's *Scotland* (1815), and Ainslie's *Scotland* (1789).

Maps.—The Directorate of Military Survey, War Office, are presenting to the Society a complete set of maps published or acquired during the war, including maps published by the Army Map Services of the United States. This will constitute a magnificent addition to the Society's Map Collection, as the set is likely to comprise forty or fifty thousand map sheets.

Lantern Slides.—50 lantern slides of Chinese life and scenery were presented by Mr. John Mackercher, Fortrose; 50 slides of the West Indies, by Dr. Angus Macdonald, Edinburgh; 2000 slides, by Mrs. John Mathieson, Edinburgh, who also gave a cabinet for storing survey instruments; 1000 lantern slides of Scotland, England, Wales, Holland, France, Switzerland, Spain, Italy and Dalmatia, by Mr. George W. Wight, Edinburgh.

All donors were heartily thanked by the Council for their generosity.

NOTICE

LANTERN SLIDES, ETC.—The Society's lantern slides and picture cards are being classified and arranged in sets. But many parts of the world are inadequately represented and others are not represented at all. The Society would therefore greatly appreciate gifts of slides and picture cards for which members have no further use.

It is probable that many slides or picture cards sent may already be represented in the sets and may not be required for the Society's collection. Donors are therefore asked to communicate any particular wishes for the disposal of gifts not required for the sets. Additions to the library and map collection are, of course, equally welcome.